

Multimodal But Not Yet Multiliterate: A Retrospective Needs Analysis of Pandemic-Era EFL Reading and Writing in the UAE

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ABSTRACT

The abrupt COVID-19 school closures forced English as a foreign language (EFL) teachers to adopt multimodal and online reading and writing practices at speed, but it remains unclear whether this constituted a durable, principled shift toward multiliteracies pedagogy or a temporary, improvised response to crisis. This study addresses that question through a retrospective, explanatory sequential mixed-methods needs analysis conducted in the Al-Dhafra region of Abu Dhabi, United Arab Emirates, where strong digital infrastructure meant that access was not the binding constraint on adaptation. A survey of 33 secondary EFL teachers measured six constructs — value, confidence, practice, challenges and remedies, implications, and preferences — and semi-structured interviews with 11 purposively selected teachers explained the survey patterns. Teachers reported high value for, confidence in, and practice of multimodal approaches to teaching EFL reading and writing (all amid-pandemic construct means above 4.0 on a five-point scale), with strong, significant intercorrelations among constructs; the strongest association linked engagement with implementation challenges to recognition of long-term significance ($r = .837$). A counterintuitive “experience–innovation paradox” emerged: less experienced teachers reported significantly more multimodal practice than their more experienced colleagues ($p = .013$). Qualitatively, teachers described a trajectory from scepticism to recognition and from uncertainty to self-efficacy, and reframed implementation challenges as informal professional development; yet their adaptation was, by their own account, necessity-induced and atheoretical, lacking explicit multiliteracies grounding. The study contributes a documented, rather than assumed, evidence base for a subsequent multiliteracies intervention, and argues that crisis-era instructional adaptations left teachers multimodally active but in need of a structured framework and institutional support to sustain and deepen the change.

Keywords: Multiliteracies; EFL reading and writing; teacher change; multimodal pedagogy; needs analysis

INTRODUCTION

The abrupt shift to remote instruction during the COVID-19 pandemic was a vast and unplanned experiment in multimodal literacy teaching. Almost overnight, English as a foreign language (EFL) teachers who had taught reading and writing largely through print were obliged to assemble lessons from video, audio, images, online texts, and collaborative platforms, and to teach learners to read and compose across those modes. Studies across many contexts documented the speed and inventiveness of this adaptation, as well as its unevenness and its costs [1], [2]. What remains less clear is what these adaptations amounted to pedagogically: whether teachers’ engagement with multimodal meaning-making was theoretically framed and aligned with multiliteracies pedagogy, or arrived at pragmatically as a response to the constraints of remote and hybrid teaching. This distinction matters because it determines whether post-pandemic professional development can build on an existing foundation or must begin afresh, and whether the multimodal practices many teachers came to value can be sustained without deliberate, principled support.

Conceptually, the multimodal improvisation of the closures resonates strongly with multiliteracies theory. The New London Group [3] argued that meaning-making in contemporary societies is irreducibly multimodal —

linguistic, visual, audio, spatial, and gestural — and that a pedagogy adequate to it must move beyond the written word as the sole carrier of meaning. Cope and Kalantzis [4], [5] elaborated this into Learning by Design, a set of knowledge processes through which learners actively design meaning rather than merely receive it. On this view, the pandemic may have pushed teachers, by necessity, toward practices that multiliteracies theory had long advocated. Yet there is an important and frequently elided difference between using multimodal tools under duress and enacting multiliteracies pedagogy in a principled way [6], [7]. Documenting that teachers used videos and online platforms does not establish that they understood or could sustain multimodal meaning-making as a coherent approach to literacy.

Recent research on pandemic-era teaching has begun to consolidate around the concept of teacher agency, showing that teachers exercised considerable agency in adapting online instruction but in highly uneven, context-dependent ways [8], and documenting the specific difficulties of moving reading instruction online and the strategies teachers improvised in response [9]. At the same time, learners experienced measurable literacy learning loss, particularly the already disadvantaged [10], raising the stakes of getting post-pandemic literacy pedagogy right. Reviews of multimodal and multiliteracies practice nonetheless note that the evidence base remains methodologically thin and that rigorous, context-sensitive studies are needed, especially outside the well-studied higher-education settings [11], [12]. Gulf secondary EFL contexts are particularly under-represented despite substantial national investment in digital education.

Reading and writing are a particularly consequential site for this question. They are the literacy skills most directly assessed, most central to academic progression, and — historically — most firmly tied to print, which makes any shift in how they are taught a demanding one for teachers and a revealing one for researchers. If multimodal adaptation reached reading and writing, rather than remaining at the level of presentation or classroom management, then the pandemic genuinely touched the core of literacy instruction. Establishing whether and how it did so, in a system where access was not the limiting factor, is the empirical task this study undertakes.

Two gaps in this body of work motivate the present study. The first is evidentiary: most accounts of pandemic-era literacy teaching are themselves products of the emergency, capturing adaptation as it happened rather than asking, with hindsight, what it amounted to and whether it can be sustained. A retrospective needs analysis — conducted once classrooms had reopened and teachers could reflect on the whole arc of the experience — occupies a different and complementary position, treating the pandemic not as an event to be managed but as a natural experiment whose lessons can inform deliberate post-pandemic intervention design. The second gap is conceptual: the literature seldom distinguishes clearly between teachers' use of multimodal tools and their enactment of multiliteracies pedagogy, with the result that increased technology use is too readily read as pedagogical transformation. By organising the survey around constructs aligned with multiliteracies theory and using interviews to probe teachers' reasoning, the present study is designed to draw exactly that distinction, and thereby to establish whether a structured framework is needed to convert adaptation into sustainable practice.

The United Arab Emirates is an instructive case. The Ministry of Education oversees a standards-based, technology-enhanced public system in which English is the medium of instruction for core subjects, and it implemented a national remote-then-hybrid model during the closures [13], [14]. Because digital infrastructure was comparatively strong, adaptation in the UAE was not primarily constrained by access — which allows a more interesting question to surface: given the tools, did teachers move toward principled multimodal pedagogy, or simply toward emergency delivery? Teachers in the remote western region of Al-Dhafra adapted reading and writing instruction under real constraints, making the region a useful vantage point from which to examine what pandemic-era adaptation actually entailed and what it implies for the future of EFL literacy instruction. This study therefore conducts a retrospective needs analysis as the first cycle of a larger programme whose second cycle tests a structured multiliteracies intervention. In a technology-rich system such as the UAE's, where access was not the binding constraint, the innovation of this first cycle is methodological and diagnostic: it documents, rather than assumes, the pedagogical foundation on which a subsequent multiliteracies intervention can build, and it distinguishes teachers' use of multimodal tools from their enactment of multiliteracies pedagogy — a distinction the field too often elides.

THEORETICAL FRAMEWORK

The study is framed by multiliteracies theory and its Learning-by-Design elaboration, supplemented by the literature on literacy teaching change. The New London Group's [3] pedagogy of multiliteracies reconceived literacy as the capacity to design meaning across multiple modes in response to linguistic and cultural diversity and to the multimodality of contemporary texts. Cope and Kalantzis [4], [5] operationalised this through recurring knowledge processes — experiencing the known and the new, conceptualising by naming and theorising, analysing functions and interests, and applying knowledge appropriately and creatively — which reposition the learner as an active designer of meaning. These processes provide a vocabulary for distinguishing genuine multiliteracies pedagogy, in which multimodal resources are deliberately orchestrated for meaning-making, from the incidental use of multimodal tools to deliver otherwise conventional instruction. That distinction is central to the present study's interpretive lens: the survey constructs and interview themes are read not merely as indices of technology use but as evidence about whether teachers' adaptation approached the principled, design-oriented practice the framework describes.

The framework is complemented by research on the conditions under which teachers change their practice. Guskey's [15] model of teacher change holds that durable change in beliefs and attitudes typically follows, rather than precedes, teachers' experience of improved outcomes in their own classrooms — a sequence that helps interpret why teachers in this study came to value practices they had first adopted reluctantly. Recent multiliteracies scholarship similarly locates the decisive factor for durable change in teachers' reflexive, supported enactment rather than in the availability of tools [12]. Together, these perspectives frame the central analytic question: whether crisis-driven adaptation, however genuine, can mature into sustained multiliteracies practice without a structured pedagogical framework and the institutional support to enact it.

Within this framework, reading and writing are themselves reconceived. Reading becomes an act of interpreting multimodal design — attending not only to words but to image, layout, and the interplay among modes — while writing becomes an act of designing meaning for an audience across available modes, rather than transcribing speech or reproducing a model text. This reconception matters for interpreting the present data, because it implies that teachers who moved reading and writing onto multimodal platforms were, in principle, expanding what those literacies involve, not merely changing their delivery medium. Whether teachers experienced the shift in these terms — as an enlargement of literacy — or simply as a change of tools is one of the questions the qualitative strand was designed to illuminate.

Two further strands inform the study's interpretive lens. The first is the social-semiotic account of multimodality, which holds that modes — image, writing, layout, sound, gesture — each carry distinct meaning potentials, so that composing across modes is not a simplification of literacy but an expansion of it [6], [7]. On this account, a teacher who moves reading and writing instruction onto multimodal platforms is, whether or not they conceive of it this way, altering the semiotic demands placed on learners; the question is whether teachers recognise and deliberately exploit those demands. The second strand is the value–confidence–practice nexus that runs through research on teacher adoption of innovation: teachers' enacted practice tends to depend jointly on how much they value an approach, how confident they feel enacting it, and how far their context permits it. Structuring the survey around these interlocking constructs allows the study to examine not only whether teachers adapted, but how the components of adaptation related to one another — and, in particular, whether valuing and practising multimodal approaches translated into firm intentions to sustain them.

Research Questions

Primary question: How did EFL teachers adapt reading and writing instruction during COVID-19, and to what extent did these adaptations align with multiliteracies pedagogy? Accordingly, three research sub-questions guide the study:

RQ1a: How did teachers adapt EFL reading and writing instruction during COVID-19?

RQ1b: What pedagogical preferences for reading and writing did teachers retain or develop following the pandemic?

RQ1c: To what extent did these adaptations and preferences align with multiliteracies pedagogy, and were they theoretically framed as such or arrived at pragmatically?

METHODOLOGY

Research Design

The study employed a retrospective, explanatory sequential mixed-methods design [16], [17] as the first cycle of a larger two-cycle programme (Figure 1). A quantitative survey first established the breadth and patterning of pandemic-era adaptation; semi-structured interviews then explained those patterns by surfacing teachers' reasoning. The design is explanatory in that the qualitative strand was used to interpret and elaborate the survey findings rather than to generate independent results, and sequential in that quantitative data collection and preliminary analysis preceded and shaped the qualitative phase. As a needs analysis, the cycle is diagnostic by intent: it characterises an existing situation in order to inform the design of the subsequent intervention reported in the companion study.

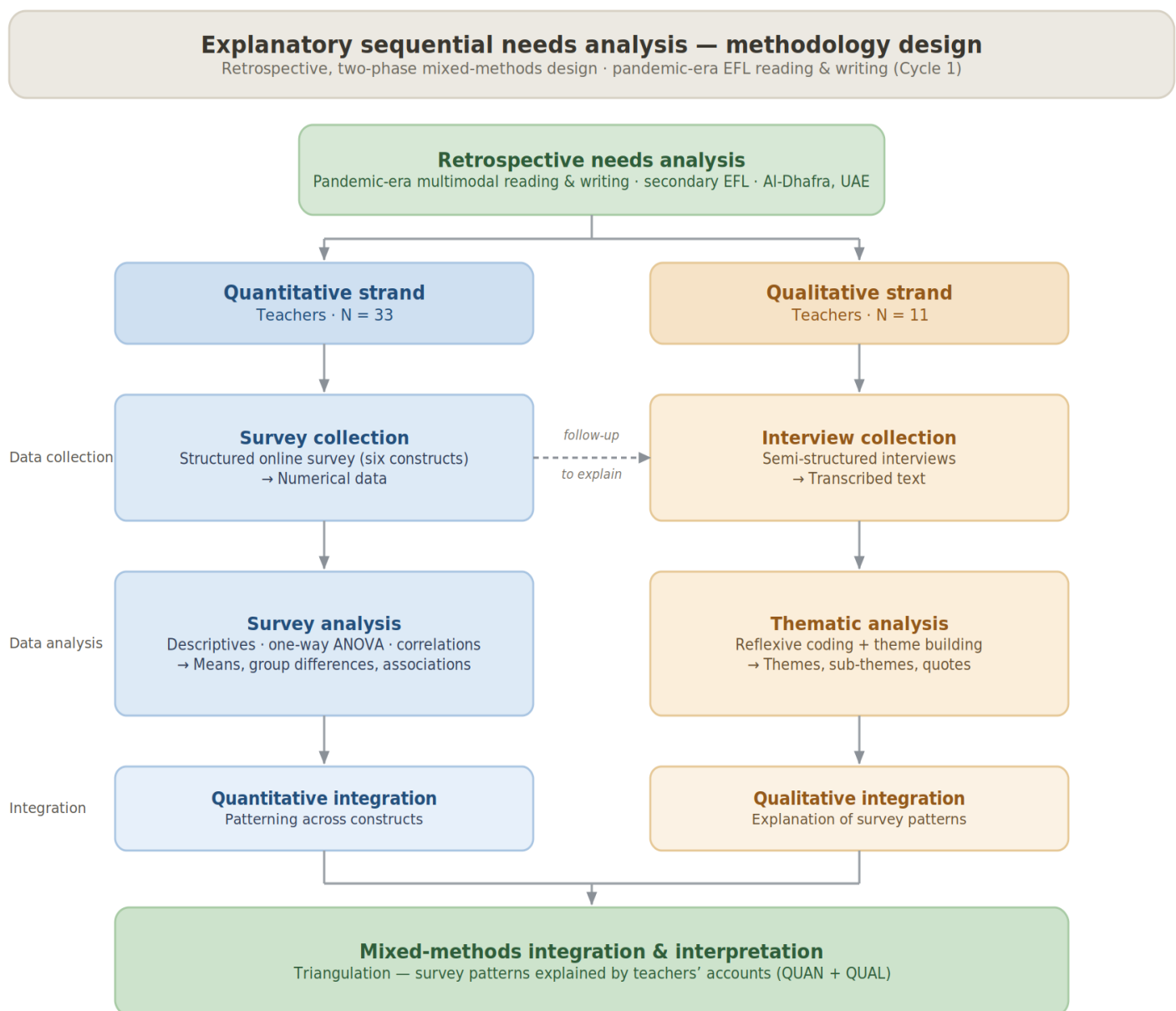


Figure 1. The Cycle 1 explanatory sequential needs-analysis design: a retrospective quantitative survey (N = 33) followed up with explanatory qualitative interviews (N = 11), integrated through triangulation. Cycle 1 is the first of the two cycles in the larger programme.

Participants

Participants were secondary EFL teachers in the Al-Dhafra educational region of Abu Dhabi, a geographically dispersed area served by the federal public-school system. Of 40 teachers invited, 33 completed the survey, an 82.5% response rate that is high for voluntary teacher research and supports the representativeness of the findings for this teaching community. The sample comprised native-English-speaking and non-native-English-speaking teachers spanning a wide range of teaching experience, which made it possible to examine whether adaptation varied by experience. From the survey respondents, 11 teachers were purposively selected for semi-structured interviews to capture variation in experience, school, and reported practice (Table 1).

Table 1. Participants.

Strand	n	Selection	Characteristics
Survey (QUAN)	33	Census of region (40 invited; 82.5% response)	Secondary EFL teachers; native and non-native English speakers; varied experience
Interviews (qual)	11	Purposive, maximum variation	Subset of survey respondents; varied experience, school, and reported practice

Data Collection Process

Quantitative data were collected via Microsoft Forms in late October 2023, using a three-phase distribution to maximise response: an initial invitation to teachers' official school email, a reminder, and an acknowledgement. The instrument was distributed across the region's secondary schools, and participation was voluntary and anonymous. After preliminary analysis of the survey data, the interview phase was conducted with the 11 purposively selected teachers; interviews were semi-structured, conducted in English, audio-recorded with consent, and transcribed for analysis. The two phases were temporally and analytically connected: emerging survey patterns (for example, the experience-related difference in practice and the strong association between challenges and perceived implications) informed the interview protocol, so that the qualitative phase could probe and explain rather than merely repeat the quantitative findings (Figure 2).

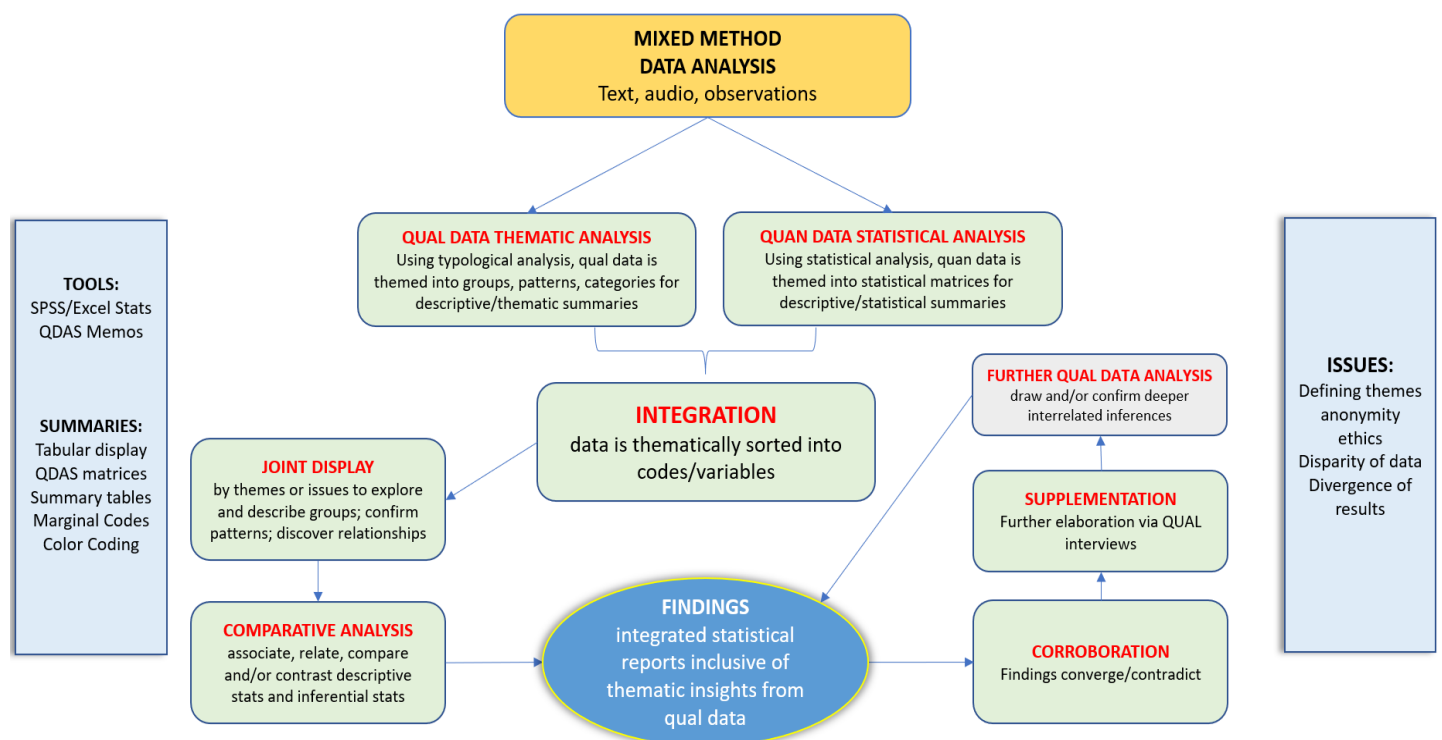


Figure 2. Joint display of the integrative mixed-methods analysis, showing how quantitative constructs and qualitative themes were brought together at interpretation.

Integration was pursued deliberately rather than left to occur at the reporting stage. Each survey construct was paired with the interview theme that elaborated it — for example, the VALUE construct with teachers’ accounts of moving from scepticism to recognition, and the CHALLENGES & REMEDIES construct with their reframing of difficulty as professional learning — so that the quantitative pattern and the qualitative explanation could be read against one another. Points of convergence (such as the alignment between high reported practice and teachers’ narratives of necessity-induced adaptation) strengthened confidence in the findings, while points of tension (such as the gap between high value and guarded preferences) became analytic prompts that the discussion takes up. This joint-display logic ensured that the qualitative strand did the explanatory work the design intended rather than merely supplying illustrative quotation.

Data Collection Tools

The principal quantitative instrument was the Teacher Multiliteracies Survey, adapted from Xu et al. [18], whose items were rated on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree) and organised into six constructs aligned conceptually with the Learning-by-Design knowledge processes. VALUE captured the perceived usefulness of interactive, online, and multimodal reading and writing strategies; CONFIDENCE captured self-efficacy in planning and delivering such instruction; PRACTICE captured the reported frequency of multimodal and online reading and writing activities; CHALLENGES & REMEDIES captured obstacles encountered and the strategies used to resolve them; IMPLICATIONS captured the perceived long-term significance of multimodal approaches; and PREFERENCES captured intended post-pandemic retention of multimodal and blended practices. The instrument underwent face and content validity review [19], [20] before distribution, and the constructs demonstrated acceptable to excellent internal consistency: Cronbach’s alpha ranged from .713 (IMPLICATIONS) to .909 (VALUE), with a total-scale alpha of .910, all exceeding the conventional .70 threshold [21], and item-total correlations ranged from .308 to .813, all above the .30 minimum (Table 2). The comparatively lower coefficient for IMPLICATIONS is theoretically coherent rather than a weakness, since its items asked teachers to project pandemic experience onto a multiliteracies framework many did not yet know by name. The qualitative instrument was a semi-structured interview schedule covering teachers’ pre-pandemic practice, their adaptations during the closures, the challenges they faced and how they addressed them, what the experience taught them about multimodal approaches, and which practices they intended to retain.

Table 2. Internal consistency (Cronbach’s alpha) of the survey constructs (N = 33).

Construct	Items	Cronbach’s α
VALUE	2	.909
CONFIDENCE	2	.733
PRACTICE	3	.732
CHALLENGES & REMEDIES	4	.765
IMPLICATIONS	2	.713
PREFERENCES	4	.794
Total scale	17	.910

Note. $\alpha \geq .70$ indicates acceptable internal consistency [21]. Item-total correlations ranged from .308 to .813, all above the .30 minimum. The total scale comprises 17 items across all six constructs.

Data Analysis

Survey data were analysed in SPSS 27.0. Following examination of construct reliability and the distribution of scores, analysis proceeded in three steps. First, descriptive statistics summarised central tendency and dispersion for each construct. Second, one-way analysis of variance, with least-significant-difference post-hoc comparisons, tested whether multimodal practice differed by teaching-experience band, after checking the

homogeneity-of-variance assumption. Third, Pearson product-moment correlations examined the interdependence of the six constructs, interpreted against conventional thresholds. Interview data were analysed using Braun and Clarke's [22] six-phase reflexive thematic analysis: familiarisation, systematic coding, theme generation, review against the full dataset, definition, and reporting. The six survey constructs served as sensitising categories within which data-driven themes were developed, allowing the qualitative strand to explain rather than merely echo the survey patterns. Trustworthiness was supported through triangulation of survey and interview evidence, reflexive memoing, and an audit trail [23], [24]. The study received ethical clearance from Universiti Malaya and research approval from the Emirates Schools Establishment; participation was voluntary and anonymous, and teachers were assigned pseudonyms with transcripts de-identified before analysis.

RESULTS

A Genuine but Uneven Shift to Multimodal Practice (RQ1a)

Teachers reported uniformly high value for, confidence in, and practice of multimodal reading and writing during the pandemic. All five amid-pandemic constructs returned means above 4.0 on the five-point scale (Table 3): teachers most strongly valued multimodal approaches (VALUE M = 4.27, SD = 0.77) and recognised their long-term significance (IMPLICATIONS M = 4.23, SD = 0.67, the lowest standard deviation and thus the most consensual construct), reported high confidence (M = 4.15, SD = 0.76) and practice (M = 4.12, SD = 0.65), and described actively solving implementation problems (CHALLENGES & REMEDIES M = 4.09). The low standard deviations indicate that these were collective rather than idiosyncratic orientations: the shift toward multimodal reading and writing was broad-based across the teaching community, not confined to a few enthusiasts.

Table 3. Descriptive statistics for the survey constructs (N = 33).

Construct	M	SD	Interpretation
VALUE	4.27	0.77	Highest mean; strongly valued
IMPLICATIONS	4.23	0.67	Lowest SD; most consensual
CONFIDENCE	4.15	0.76	High self-efficacy
PRACTICE	4.12	0.65	High reported enactment
CHALLENGES & REMEDIES	4.09	0.60	Active problem-solving
PREFERENCES	3.64	0.80	Mixed; blended high, fully online lower (M = 3.12)

Note. Constructs rated 1–5. PREFERENCES was more variable than the amid-pandemic constructs, with strong support for retaining blended elements but lower support for fully online teaching (PREF2 M = 3.12).

The item-level pattern within these constructs is itself informative. Within VALUE, teachers rated the usefulness of multimodal assignments marginally above that of purely interactive online strategies, suggesting that what they valued was not screen-based activity as such but the integration of multiple modes in students' reading and writing work. Within CONFIDENCE, self-efficacy was highest for using online resources, consistent with the experiential, tool-by-tool route to competence that the interviews described. And the exceptionally low dispersion on IMPLICATIONS — the most consensual construct in the study — indicates that, whatever their differences in confidence or practice, teachers were near-unanimous that multimodal approaches carry lasting significance for literacy teaching. This combination of high value, high recognition of significance, and lower, more variable intention to continue is the quantitative signature of the central finding: a workforce convinced of the worth of multimodal literacy teaching but uncertain it can be sustained.

The qualitative data explained how this value developed and, in doing so, sharpened a distinction the survey alone could not draw — between using technology under duress and adopting multiliteracies pedagogy. Four themes structured teachers' accounts, corresponding to the survey constructs but adding the reasoning behind

them (Table 4). The first was a trajectory from scepticism to recognition: tools first adopted reluctantly, and often resented as a burden imposed by circumstance, came to be valued once teachers observed students engaging with multimodal tasks in ways conventional print work had not elicited. Emily came to see the remote and hybrid contexts as “very effective to teach EFL reading and writing skills as there are variety of digital platforms, online resources, and interactive tools.” This recognition was nonetheless conditional rather than uncritical: Arya valued online strategies but stressed that “their success depended on the nature of the curriculum content, reliability of technological infrastructure, student engagement, and teacher adaptability” — a nuance that helps explain why VALUE combined a high mean with low dispersion. Value, in other words, was earned experientially rather than argued in the abstract — a sequence consistent with accounts of teacher change in which conviction follows demonstrated success [15]. The second theme was a parallel movement from uncertainty to self-efficacy: teachers arrived at similar confidence through divergent routes. Some drew on prior expertise, while others, such as Marlina, began without it — “I did not have enough knowledge or expertise to confidently use online resources and authoring tools” — and built competence through repeated, necessity-driven use and shared professional learning rather than formal preparation.

The third theme was necessity-induced practice. Teachers were strikingly candid that their practice change was a response to closure rather than a considered pedagogical redesign; they had reached for multimodal and online resources because the situation demanded it, not because they were enacting a theory of multimodal meaning-making. For some, the improvisation nonetheless reached the core of assessment: Marlina concluded that “traditional reading and writing metrics just weren’t cutting it anymore; our assessment needed to be multimodal, too,” and built rubrics to evaluate students’ integrated multimodal work. Others felt the constraint more than the opportunity — Jaxon used multimodal design “one time, but not often due to time and effort demanding,” citing pressure to cover the curriculum and the Ministry of Education’s examination requirements. This self-description is the empirical heart of the study’s central claim: the practice was real, but its rationale was situational rather than principled. The fourth theme was problem-solving as professional development. Teachers consistently reframed implementation difficulties — unreliable engagement, assessment challenges, unfamiliar tools — not as mere obstacles but as the occasions on which their understanding grew. Jaxon named the cost plainly, observing that multimodal design “doubles the amount of time and energy of teachers,” while David treated the same difficulty as a matter of professional balance rather than deterrence. Several described the trial-and-error of the closures as the most intensive professional development of their careers. Taken together, these themes contribute a nuance often missing from pandemic-pedagogy accounts that equate increased tool use with pedagogical transformation [8]: the change was real in practice yet shallow in principle, leaving teachers multimodally active but theoretically unanchored.

Table 4. Summary of qualitative themes and their illustrative evidence (RQ1a).

Theme	Survey construct	Illustrative evidence
1. From scepticism to recognition	VALUE	Tools first resented, then valued as students engaged; recognition conditional on context (Emily; Arya).
2. From uncertainty to self-efficacy	CONFIDENCE	Confidence reached by two routes — prior expertise (David) and necessity-driven practice (Marlina).
3. Necessity-induced practice	PRACTICE	Multimodal adoption driven by closure, not theory; some reconceived assessment, others felt time and curriculum constraints (Marlina; Jaxon).
4. Problem-solving as professional development	CHALLENGES & REMEDIES	Difficulty reframed as learning; effortful problem-solving linked to recognition of long-term significance (Jaxon; David).

Across these four themes, a single underlying logic recurred: teachers learned multimodal literacy teaching by doing it, under conditions that left no alternative, and came to value it through the evidence of their own classrooms rather than through prior conviction or training. This experiential route had a notable consequence for how teachers understood what they were doing. Because the practices had been assembled piecemeal to solve immediate problems, teachers tended to describe them as a collection of useful techniques — a video here, a

collaborative document there, an online quiz to check understanding — rather than as expressions of a coherent view of literacy. When prompted to reflect on the bigger picture, several recognised, in effect, that they had been teaching multimodally without a name for it, and welcomed the prospect of a framework that would let them do deliberately and systematically what they had been doing by improvisation. This readiness is itself a finding: it indicates that the population is not resistant to multiliteracies pedagogy but, on the contrary, primed for it, lacking only the organising architecture and the conditions to sustain it.

The Experience–Innovation Paradox (RQ1a, continued)

Comparison by teaching experience produced a counterintuitive result that became one of the study’s most consequential findings (Table 5). Less-experienced teachers (1–5 years) reported significantly higher multimodal practice than colleagues with 6–10 years (mean difference = 0.81, $p = .013$) and those with more than 10 years (mean difference = 0.51, $p = .039$); the two more-experienced groups did not differ significantly from one another. Rather than seniority predicting innovation, relative novelty did — an “experience–innovation paradox” in which teachers with less entrenched print-based routines adapted their literacy practice more readily under crisis conditions. This finding contributes a corrective to diffusion-of-innovation assumptions that position experienced practitioners as pedagogical leaders: under disruptive conditions, fewer established routines appear to have functioned as an asset rather than a deficit. It also carries a practical implication, locating early-career teachers as potential anchors for post-pandemic multiliteracies adoption rather than as recipients of veteran-led mentoring alone.

Table 5. Post-hoc comparison of PRACTICE scores by teaching experience (one-way ANOVA, LSD).

Comparison (reference: 1–5 years)	Mean difference	p
vs. 6–10 years	0.81	.013
vs. more than 10 years	0.51	.039
6–10 years vs. more than 10 years	n.s.	> .05

Note. Less-experienced teachers reported significantly higher multimodal PRACTICE than both more-experienced groups.

Two qualifications give this paradox its proper weight. First, the effect was specific to practice: the experience bands did not differ appreciably in how much they valued multimodal approaches or recognised their implications, which were uniformly high across the sample. What separated the groups was enactment, not conviction — suggesting that more-experienced teachers were not less persuaded of multimodal approaches but more encumbered by established routines when it came to changing what they actually did. Second, the pattern is consistent with the qualitative accounts of necessity-induced practice: teachers with shorter careers had fewer entrenched print-based habits to displace and could therefore reorganise their practice more readily under pressure. The paradox thus does not imply that experience is a liability in general; it implies that, under conditions of abrupt change, the absence of deeply grooved routines can be an enabling rather than a limiting condition — a finding with direct consequences for how schools distribute leadership of post-pandemic innovation.

Relationships Among Constructs (RQ1a, continued)

All six constructs demonstrated significant positive intercorrelations ($p < .01$; Table 6), indicating a coherent orientation in which valuing, feeling confident about, practising, and recognising the implications of multimodal approaches moved together. The strongest association linked CHALLENGES & REMEDIES with IMPLICATIONS ($r = .837$), and CHALLENGES & REMEDIES also correlated strongly with VALUE ($r = .664$) and PRACTICE ($r = .687$). This pattern is theoretically informative: teachers who engaged most actively with the difficulties of multimodal teaching were also those who most clearly recognised its long-term significance, suggesting that grappling with implementation challenge — rather than untroubled adoption —

was the route to deeper pedagogical insight. The post-pandemic PREFERENCES construct correlated only moderately with the amid-pandemic constructs ($r = .48-.57$), the weakest associations in the matrix, foreshadowing the gap between teachers' high valuation of multimodal practice and their more guarded, contingent intentions to sustain it.

Table 6. Correlation matrix of research variables (N = 33).

Variable	1	2	3	4	5	6
1. VALUE	1					
2. CONFIDENCE	.663**	1				
3. PRACTICE	.608**	.673**	1			
4. CHALLENGES & REMEDIES	.664**	.504**	.687**	1		
5. IMPLICATIONS	.724**	.544**	.589**	.837**	1	
6. PREFERENCES	.513**	.498**	.480**	.573**	.565**	1

Note. ** $p < .01$ (two-tailed).

Post-Pandemic Preferences (RQ1b)

Teachers expressed a clear preference for retaining multimodal and blended elements of reading and writing instruction after reopening, valuing in particular the engagement and the differentiation these afforded learners of varying proficiency. The preference was not uniform across modalities: support for blended approaches was strong, but support for fully online teaching was markedly lower (PREF2 $M = 3.12$), and support for hybrid arrangements was moderate (PREF4 $M = 3.33$), indicating that teachers wished to retain the multimodal richness of the closures without their remoteness. Crucially, teachers framed these preferences as aspirations contingent on support rather than settled commitments: sustaining multimodal practice, they argued, would require professional development in multiliteracies and the supporting technologies, protected time for the heavier planning and assessment such work entails, and institutional backing that emergency improvisation had never provided. The gap between high value and guarded, contingent preference — visible quantitatively in the comparatively weak PREFERENCES correlations — is the central tension the alignment analysis below takes up.

Alignment with Multiliteracies Pedagogy (RQ1c)

Read together, the quantitative and qualitative strands imply that the pandemic carried teachers to the threshold of multiliteracies practice without equipping them to cross it. Teachers valued multimodal approaches highly and practised them widely, recognised their significance with near-consensus, and had developed genuine, if uneven, confidence; yet their adaptation was, by their own account, necessity-induced and atheoretical, and the strong challenge–implications association indicates that the deeper understanding some teachers reached was generated by effortful problem-solving rather than by a framework that organised their choices. The picture is therefore neither one of failure nor of transformation, but of a population of teachers carried by circumstance to a multimodal way of working that they did not yet possess the conceptual architecture to sustain. This is precisely the condition a structured multiliteracies framework is designed to address, and it constitutes the documented need on which the companion intervention study builds.

This sustainability concern is sharpened by the preferences pattern reported above: teachers' high and consensual valuation of multimodal approaches did not translate into correspondingly firm intentions to retain them. Two readings of that gap are possible, and the qualitative data favour the second. The first is that teachers were ambivalent about multimodal approaches — but this is inconsistent with the uniformly high value and implications scores. The second, better supported, is that teachers' intentions were conditioned by their appraisal of what reopened, in-person schooling would realistically permit: without protected time, curricular space, and

support, even valued practices might not survive the return to business as usual. On this reading, the preferences construct measures not conviction but a sober assessment of sustainability, and its weakness relative to the other constructs is the clearest quantitative signal that adaptation alone, however genuine, is unlikely to endure unaided.

DISCUSSION AND CONCLUSION

This study set out to determine whether EFL teachers' pandemic-era shift toward multimodal reading and writing constituted a durable, principled move toward multiliteracies pedagogy or a temporary, improvised response to crisis. Three findings cohere into a single interpretation. First, the shift was genuine and broad-based: teachers across the region valued, practised, and recognised the significance of multimodal approaches, in terms that align closely with multiliteracies theory [3], [5]. Second, that shift was nonetheless intuitive and atheoretical: teachers adapted by necessity, without a systematic framework to organise their choices, and described the change as crisis-driven rather than principled. Third, the experience–innovation paradox and the strong challenge–implications association together indicate that the conditions for deeper change were generated by active, effortful problem-solving rather than by prior expertise or untroubled implementation. The picture is therefore one of teachers carried to the threshold of multiliteracies practice without the framework to cross it.

These results extend the pandemic-pedagogy literature in three ways. They corroborate accounts of widespread multimodal improvisation [1], [9] while showing, in a Gulf secondary context, that such improvisation does not by itself constitute multiliteracies pedagogy — a distinction frequently elided when technology use is read as evidence of new literacies, and one that recent work on teacher enactment makes central [12]. They refine accounts of teacher agency during the pandemic [8] by identifying a specific, measurable correlate of pedagogical insight: engagement with implementation difficulty, captured in the strong CHALLENGES & REMEDIES–IMPLICATIONS association. And they complicate diffusion-of-innovation models that privilege veteran expertise and positive early experiences; here it was teachers' grappling with difficulty, and their relative freedom from entrenched print routines, that most strongly accompanied recognition of multimodal practice's transformative potential. This pattern echoes Xu et al. [18], whose study of foreign-language instructors found that teachers' actual usage during emergency remote teaching, rather than their prior online experience, predicted their intention to continue — locating enacted practice, not seniority, as the engine of change, and aligning with accounts of professional learning in which change follows experienced efficacy rather than exhortation [15].

The study's contribution also lies in its design logic, which has transferable value beyond this setting. By treating the pandemic as a natural experiment and conducting a retrospective needs analysis before designing an intervention, the study models a sequence that much multiliteracies research has skipped: it establishes empirically what teachers already do, value, and find difficult, and uses that evidence to specify what a subsequent framework must provide. This sequencing guards against a common failure mode in which interventions are designed around researchers' assumptions about teacher need and founder on the gap between those assumptions and classroom reality. Although the specific findings are bounded by the UAE Al-Dhafra context, the analytic approach — distinguishing tool use from principled pedagogy, locating the correlates of pedagogical insight, and reading the value–intention gap as a signal about sustainability — is transferable to other systems seeking to convert pandemic-era adaptation into durable literacy reform.

Beyond these contributions, the constructs' internal structure carries a message of its own. That the strongest relationship in the matrix bound challenges-and-remedies to implications, while preferences correlated only moderately with everything else, suggests that the teachers who had wrestled most with the practical difficulties of multimodal teaching were also those most convinced of its long-term value — yet conviction did not translate automatically into firm intentions to continue. This dissociation between conviction and intention is, on the present interpretation, exactly what one would expect of practice that is valued but unsupported: teachers know multimodal approaches matter and have felt their benefits, but in the absence of a framework and the institutional conditions to enact it, they are understandably guarded about committing to demanding work. The finding reframes the post-pandemic challenge as one not of persuasion — teachers are already persuaded — but of structure and support, and in doing so it specifies precisely what a second, interventional cycle must supply.

In conclusion, the pandemic produced a real but shallow transformation in EFL literacy teaching in this UAE region: real in practice, shallow in principle. Teachers arrived, by necessity, at a multimodal way of working that they valued and wished to keep, but they lacked the conceptual framework and the institutional support to sustain and deepen it. The contribution of this needs analysis is to document that condition rigorously — rather than assume it — and thereby to ground the design of a structured multiliteracies intervention on evidence of demonstrated need.

Study Implications

If pandemic adaptation left teachers multimodally active but theoretically unanchored, the central practical implication is that post-pandemic professional development should not start from zero but should give a framework to a practice teachers already partly own. Two design principles follow from the data. First, because insight here grew from problem-solving rather than from prior training, professional development is likely to be most effective when it is embedded in classroom implementation — cycles of trying, reflecting, and refining — rather than delivered as decontextualised workshops. Second, because early-career teachers reported the most multimodal practice, they represent an underused resource for peer-led, school-based change rather than only recipients of veteran mentoring; programmes that pair experienced and early-career teachers around concrete multimodal tasks may therefore be especially productive.

At the policy and institutional level, the moderate and contingent link between pandemic practice and intended future practice is a warning: without curricular space, protected planning time, and sustained institutional support, valued innovations will not persist once the emergency that prompted them recedes. For systems such as the UAE's, where digital infrastructure is already strong, the implication is that the binding constraint on sustaining multimodal literacy teaching is structural and professional rather than technological. More broadly, the study implies that a documented needs analysis should precede the design of multiliteracies interventions, so that frameworks are built on evidence of what teachers actually do and need rather than on assumption — the logic that motivates the companion intervention study.

For teacher education specifically, the findings suggest reframing the goal of professional development from introducing multimodal tools to integrating them within a coherent literacy framework. Teachers in this study did not need to be convinced that images, video, and collaborative platforms belong in reading and writing instruction; they needed help converting a repertoire of techniques into a principled practice that connects reading, writing, and designing as a single act of meaning-making. Initial teacher education and in-service programmes could therefore foreground the knowledge processes of Learning by Design as an organising scheme, use teachers' own pandemic-era materials as the raw material for reflection, and treat early-career teachers — who reported the most multimodal practice — as co-facilitators rather than only trainees. Such an approach would build directly on the foundation the pandemic laid, rather than treating post-pandemic teachers as a blank slate.

Study Limitations and Recommendations for Further Research

The findings rest on retrospective self-report from a single region, with the recall and social-desirability limitations that entails; teachers reporting on their own pandemic practice may reconstruct it more coherently, or more favourably, than it occurred. The sample, though representative of a small teaching community and yielding a high response rate, is modest, which constrains the precision of the subgroup comparisons in particular, and the experience-band differences should therefore be read as indicative rather than definitive. Most fundamentally, the study describes orientations and reported practice rather than observed classroom behaviour or student learning, so its claims are diagnostic rather than causal.

A further limitation concerns the constructs themselves. Although the survey was adapted from a validated instrument and checked for content validity and internal consistency, its construct structure awaits independent confirmation in this population, and the correlational findings, including the experience–innovation paradox and the challenge–implications association, are associational rather than causal. The retrospective framing also

means that teachers reported on a period that had ended, so the practices described are those teachers recalled and chose to report, not a real-time record. None of these limitations undermines the study's diagnostic purpose, but each marks a boundary on the strength of its claims and a target for the more controlled, prospective work that follows.

These limitations chart a clear agenda for further research. The most direct next step — pursued in the companion study — is a prospective, classroom-based intervention that operationalises the Learning-by-Design knowledge processes for EFL reading and writing and tests, under in-person conditions, whether a structured multiliteracies framework can convert intuitive adaptation into durable, principled practice with measurable learning effects. Beyond that, observational studies of multimodal literacy teaching, larger and multi-region samples, and longitudinal designs tracking whether valued practices persist would all strengthen the evidence base, as would research that incorporates student outcomes alongside teacher accounts. Replication in other Gulf and wider EFL contexts would test how far the experience–innovation paradox and the challenge–insight relationship generalise.

Ethical Considerations

This study received ethical clearance from Universiti Malaya (Malaysia) and research approval from the Emirates Schools Establishment (ESE), UAE, prior to data collection. Participation was voluntary and anonymous; teachers provided informed consent, were assigned pseudonyms, and had their interview transcripts de-identified before analysis. The research involved adult teacher participants only and was conducted in accordance with the lead author's university code of research conduct.

Conflict Of Interest

No potential conflict of interest was reported by the authors.

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Data Availability

The data supporting the findings of this study are not publicly available because they contain potentially identifiable information about EFL teachers from a small, geographically concentrated professional community, and because the conditions of ethical approval and informed consent under which they were collected restrict public release. De-identified aggregate data — the descriptive statistics, reliability coefficients, analysis-of-variance results, and correlation matrices reported in Tables 2 to 6 — are presented in full within the manuscript. De-identified, item-level survey data supporting these analyses are available from the corresponding author upon reasonable request, subject to the terms of the ethical approvals granted by Universiti Malaya, Malaysia, and the Emirates Schools Establishment (ESE), UAE, and to a data-use agreement preserving participant anonymity. Interview transcripts and any data that could compromise the confidentiality of teacher participants will not be released.

Declaration Of Ai-Generated Content

The authors confirm that the use of artificial intelligence (AI) tools was limited to language editing, data organisation, and consistency checks. No AI tools were used in the conception, analysis, or interpretation of the research, and the authors take full responsibility for the content of the manuscript.

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APPENDIX

Appendix A. Teacher Multiliteracies Survey (Construct Map)

Items were rated on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree) and organised into six constructs aligned with the Learning-by-Design knowledge processes. The abridged construct map below shows representative item content; the full instrument is available from the authors.

Value (experiencing): perceived usefulness of interactive online and multimodal reading and writing strategies.

Confidence (conceptualising): self-efficacy in planning and delivering online, multimodal literacy instruction.

Practice (applying): reported frequency of multimodal and online reading and writing activities enacted.

Challenges & Remedies (analysing): obstacles encountered and the strategies used to resolve them.

Implications: perceived long-term significance of multimodal approaches for literacy teaching.

Preferences: intended post-pandemic retention of multimodal and blended practices.

Appendix B. Teacher Interview Schedule (Abridged)

1. How did you teach reading and writing before the pandemic, and how did that change during the closures?
2. Which multimodal or online strategies did you adopt, and why?
3. What were the main challenges, and how did you address them?
4. What did the experience teach you about the place of multimodal approaches in literacy instruction?
5. Which practices do you intend to keep now that schools have reopened, and what would help you sustain them?