

Psychometric tools for evidence-based education policy

VOLUME-VII



**Future-Ready Schools
Inclusive Learners
Viksit Bharat 2047**

Psychometric tools for evidence-based education policy

A policy framework for scale development,
learning assessment, student support
indicators, programme evaluation,
and data-based reform



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Inclusive Learners
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Psychometric tools for evidence-based education policy: A policy framework for scale development, learning assessment, student support indicators, programme evaluation, and data-based reform

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Author Profile

Dr. Harshvardhan Singh is an education researcher, psychometrician, and curriculum-evaluation professional working in the areas of educational measurement, research tool development, learning assessment, teacher education, inclusive education, digital readiness, student support systems, and policy-relevant educational research. His work focuses on evidence-based reform, psychometric scale construction, learner diversity, educational assessment, teacher capacity, and data-informed education improvement.

His academic and professional interests include the development and validation of educational and psychological tools, competency-based assessment, teacher effectiveness measurement, inclusive education indicators, student support systems, digital readiness frameworks, and programme evaluation for school and higher education. He has contributed to policy-oriented writing, research tool construction, curriculum evaluation, and educational reform discussions with a particular focus on improving the quality, equity, and accountability of Indian education.

Dr. Singh's work is guided by the belief that educational reform becomes meaningful only when policy intentions are supported by valid evidence, ethical measurement, and practical implementation systems. He emphasises that data should not be collected merely for reporting or compliance; it should be used to understand learners, support teachers, strengthen institutions, improve programmes, and build more inclusive and responsive education systems.

Through the *Education for Viksit Bharat 2047: Policy Monograph Series*, he seeks to contribute practical, evidence-based, and implementation-oriented frameworks for policymakers, education departments, universities, SCERTs, DIETs, schools, NGOs, researchers, and educational leaders committed to national educational transformation.

Preface

Education reform in India has entered a stage where access, infrastructure, enrolment, and policy intent must be matched by stronger evidence of learning, inclusion, teacher capacity, student support, and programme effectiveness. The central question before policymakers is no longer only whether schools exist, teachers are appointed, textbooks are distributed, or students are enrolled. The deeper question is whether learners are achieving grade-level competencies, whether teachers are equipped for contemporary classrooms, whether schools are inclusive and emotionally safe, whether support systems are reaching students who need them, and whether educational programmes are producing measurable improvement.

This monograph, *Using Psychometric Tools for Evidence-Based Education Policy*, has been written in response to this need. It argues that education policy requires measurement systems that are valid, reliable, ethical, interpretable, and action-linked. Data must not remain a reporting exercise. It must help decision-makers understand learning gaps, identify support needs, design better teacher development programmes, monitor inclusive education, evaluate interventions, and improve educational governance.

India has developed important education data and assessment systems, including NAS, UDISE+, PGI, PARAKH-related assessment reform, competency-based learning initiatives, FLN programmes, and digital learning platforms. These initiatives have created a stronger foundation for evidence-based planning. However, the next stage of reform requires a deeper measurement culture. Education systems must be able to measure not only enrolment, infrastructure, attendance, and examination performance, but also readiness, motivation, self-concept, wellbeing, school climate, teacher effectiveness, digital readiness, inclusive education support, assistive technology use, programme outcomes, and impact indicators.

Psychometric tools are especially important in this context. Properly developed scales, diagnostic assessments, rubrics, observation schedules, readiness tools, student support indicators, teacher capacity measures, and programme evaluation instruments can make invisible educational realities visible. They can help identify whether a learner requires academic remediation, whether a teacher needs support in assessment literacy, whether a school climate is affecting student participation, whether digital resources are being used pedagogically, or whether an inclusive education programme is supporting meaningful participation rather than merely recording enrolment.

At the same time, measurement must be handled responsibly. A poorly designed tool can mislead policy. An invalid scale can label students unfairly. An unreliable observation tool can misjudge teachers. A dashboard without context can create harmful rankings. A programme evaluation without baseline evidence can produce exaggerated claims. Therefore, this monograph emphasises that psychometric tools must be developed through careful construct definition, item writing, expert validation, pilot testing, item analysis, validity evidence, reliability evidence, ethical protocols, and interpretation guidelines.

The book introduces the **Evidence-Based Psychometric Measurement and Evaluation Framework**, or **E-PME Framework**, as a practical policy model. The framework integrates learning outcome assessment, psychometric scale development, student support indicators, teacher capacity measurement, inclusive education indicators, programme evaluation, dashboards, and ethical data use. It is designed for use by State Education Departments, SCERTs, DIETs, BRCs, CRCs, assessment bodies, universities, teacher education institutions, NGOs, school leaders, researchers, and programme evaluators.

This monograph does not attempt to turn policymakers into statisticians or teachers into psychometricians. Its purpose is different. It seeks to show how measurement can become a practical instrument of education reform. It explains how tools can be developed, how indicators can be selected, how assessments can be linked to remediation, how teacher development can be based on evidence, how student support can be measured ethically, how inclusion can be monitored beyond enrolment, and how dashboards can support decisions rather than merely display data.

The book also stresses that measurement must always serve human development. Students should not be reduced to scores. Teachers should not be reduced to ratings. Schools should not be reduced to dashboard colours. The purpose of measurement is to understand, support, improve, and strengthen. Evidence should be used for learning assurance, equity, inclusion, teacher development, programme improvement, and policy accountability.

As India moves towards the national vision of **Viksit Bharat 2047**, education must become more evidence-informed, inclusive, competency-oriented, and accountable. Measurement reform is therefore not a narrow technical agenda. It is a foundational requirement for educational quality and national development. A developed India requires an education system that can know where learners stand, identify who needs support, understand what teachers require, evaluate what programmes achieve, and make decisions with fairness, transparency, and responsibility.

This monograph is offered as a practical contribution to that larger goal.

Acknowledgement

The preparation of this policy monograph has been shaped by a continuing engagement with the challenges of educational measurement, teacher education, inclusive education, learning assessment, research tool development, and policy-oriented educational reform. I gratefully acknowledge the broader intellectual and institutional ecosystem that has made the subject of this book both urgent and meaningful.

I express my sincere appreciation to the policymakers, education administrators, teacher educators, researchers, school leaders, assessment professionals, special educators, counsellors, and classroom teachers whose work continues to demonstrate that education reform must be grounded in evidence as well as empathy. Their efforts in schools, colleges, universities, training institutions, assessment bodies, and field-level education systems provide the real context for any discussion on psychometric tools and data-based reform.

I acknowledge the contribution of national policy frameworks and institutional initiatives that have strengthened the conversation around evidence-based education in India, including competency-based assessment, foundational learning, teacher professional development, inclusive education, digital learning, student support, programme monitoring, and data-informed planning. These initiatives have helped create the policy environment in which a framework such as E-PME can be imagined and discussed.

I also recognise the important role of SCERTs, DIETs, BRCs, CRCs, universities, NGOs, and assessment bodies in translating policy into field-level practice. The future of educational measurement in India depends not only on centralised assessment systems but also on district-level capacity, teacher-level assessment literacy, school-level support systems, and ethical use of learner data.

Special acknowledgement is due to the teachers and learners who remain at the centre of every meaningful education reform. Measurement systems, however sophisticated, have value only when they improve the lived experience of classrooms. A diagnostic assessment is useful only when it helps a learner receive support. A teacher capacity tool is meaningful only when it leads to professional development. An inclusion indicator matters only when it removes barriers to participation. A dashboard becomes valuable only when it supports better decisions.

I also acknowledge the contribution of researchers and scholars in the fields of psychometrics, educational measurement, assessment reform, programme evaluation, data systems, inclusive education, and education policy. Their work has established the importance of validity, reliability, fairness, interpretation, ethical use, and evidence-based decision-making.

Finally, I extend my appreciation to all readers, practitioners, and institutions who may use this monograph for policy planning, tool development, programme evaluation, teacher training, school improvement, research, or institutional reform. It is hoped that this work will support a more responsible, humane, and evidence-informed measurement culture in Indian education.

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Executive Summary

Psychometric tools for evidence-based education policy

A policy framework for scale development, learning assessment, student support indicators, programme evaluation, and data-based reform

Education policy becomes effective when it is guided by evidence that is valid, reliable, ethical, interpretable, and usable for decision-making. India has made major progress in expanding access to schooling, strengthening educational infrastructure, building large-scale education databases, introducing national and state-level assessment reforms, and promoting competency-based learning through policy initiatives such as the National Education Policy 2020, PARAKH, NAS, UDISE+, PGI, Samagra Shiksha, and FLN-focused reforms. Yet the next stage of educational transformation requires more than the expansion of data systems. It requires a stronger measurement culture—one that can assess learning quality, diagnose learning gaps, identify student support needs, strengthen teacher capacity, monitor inclusion, evaluate programmes, and support responsible policy decisions.

This policy monograph argues that education systems cannot depend only on enrolment, infrastructure, expenditure, attendance, programme coverage, and examination results. These indicators are necessary, but they are not sufficient. They show whether children are enrolled, schools exist, teachers are appointed, facilities are available, and examinations are conducted. They do not fully show whether students are achieving grade-level competencies, whether teachers are able to use assessment for learning, whether students feel safe and motivated, whether children with disabilities are meaningfully included, whether digital resources are improving pedagogy, or whether education programmes are producing measurable outcomes. For this reason, education policy needs valid and reliable psychometric tools, diagnostic assessments, rubrics, observation schedules, readiness measures, school climate tools, teacher capacity scales, inclusion checklists, programme-evaluation formats, and dashboards that are linked to action.

NEP 2020 provides a strong policy foundation for this shift. It calls for assessment to move from primarily summative and rote-based testing towards regular, formative, competency-based assessment that promotes learning, conceptual clarity, higher-order skills, and continuous improvement of teaching-learning processes. It also proposes a holistic, multidimensional progress card that reflects cognitive, affective, and psychomotor domains and provides teachers and parents with information to support each learner. NEP 2020 further proposes PARAKH as a national assessment centre to set norms, standards, and guidelines for student assessment and evaluation, guide state achievement surveys, undertake NAS, monitor achievement of learning outcomes, and support assessment reform.

The policy direction is therefore clear: measurement must become more learning-oriented, competency-based, holistic, and improvement-linked. However, this transformation cannot happen through examination reform alone. It requires a complete measurement ecosystem that includes learning assessment, psychometric tool development, student support indicators, teacher capacity measurement, inclusive education indicators, programme evaluation, dashboards, and ethical data governance. This monograph proposes such an integrated approach through an original framework titled the **Evidence-Based Psychometric Measurement and Evaluation Framework**, or **E-PME Framework**.

The **E-PME Framework** is designed as a practical model for State Education Departments, SCERTs, DIETs, BRCs, CRCs, PARAKH-like assessment bodies, universities, NGOs, schools, programme

evaluators, and policy researchers. It connects eight pillars: learning outcome and competency assessment; psychometric scale development and validation; student support, wellbeing, and readiness indicators; teacher capacity, digital readiness, and pedagogical effectiveness measurement; inclusive education and learning support measurement; programme evaluation through baseline, midline, endline, and impact indicators; data dashboards, interpretation, and policy decision-making; and ethics, equity, transparency, and responsible use of assessment data.

The central argument of the monograph is that measurement reform is not a technical luxury. It is a governance necessity. Without trustworthy measurement, policies may be designed on assumptions, programmes may be continued without evidence of impact, teacher training may remain generic, student support needs may remain invisible, inclusion may be reduced to enrolment, and dashboards may become reporting tools rather than decision-support systems. With strong measurement, states can identify learning gaps, design targeted remediation, strengthen teacher professional development, monitor student wellbeing, allocate resources more fairly, evaluate interventions more honestly, and build accountability around learning and equity.

Why Traditional Education Data Are Not Enough

Traditional education data remain essential for system planning. Enrolment data help governments estimate access and coverage. Infrastructure data help identify facility gaps. Teacher data support staffing decisions. Expenditure data support budgeting and financial accountability. Examination results provide information about certification and progression. UDISE+ functions as a central platform that enables schools to record and submit data related to school profiles, infrastructure, facilities, and related areas, while its dashboard presents education data by management type, enrolment level, gender, and scheme-related indicators. PGI 2.0 also provides a broad state-level performance framework, using indicators across learning outcomes and quality, access, infrastructure and facilities, equity, governance processes, and teacher education and training.

Yet administrative and examination data alone cannot fully explain educational quality. A school may have classrooms and teachers but weak learning outcomes. A student may be enrolled but below grade level. A teacher may have attended training but may still require support in formative assessment, digital pedagogy, or inclusive education. A child with disability may be present in school but may lack assistive technology, classroom accommodations, peer inclusion, or meaningful participation. A remedial programme may report sessions conducted but may not reduce learning gaps. A digital programme may report devices distributed but may not improve instruction.

Therefore, the next stage of data-based education reform must shift from **data availability** to **evidence quality**. It must ask whether the data collected are valid for the decision being made. Enrolment data are useful for access planning, but not for diagnosing reading comprehension. Examination marks are useful for certification, but not always for identifying specific learning gaps. Training attendance is useful for coverage reporting, but not for measuring classroom practice. Device distribution is useful for infrastructure monitoring, but not for measuring digital pedagogy. Inclusion enrolment data are useful, but not sufficient for measuring support, participation, wellbeing, and progress.

The E-PME Framework addresses this gap by proposing that education data systems should include both administrative indicators and psychometric indicators. Administrative indicators show what exists. Psychometric and evaluation indicators show what is happening, what is changing, what is working, and what support is required.

The Need for Valid, Reliable, and Ethical Measurement

The value of psychometric tools depends on their quality. A questionnaire is not automatically a valid tool. A scale is not automatically reliable because it has many items. A dashboard is not automatically meaningful because it uses numbers and colour codes. Measurement must be designed carefully and reviewed ethically.

The *Standards for Educational and Psychological Testing* emphasise validity, reliability or precision, fairness, test design, administration, scoring, interpretation, and test use as central principles in educational and psychological measurement. In policy terms, this means that any tool used for learners, teachers, schools, or programmes should be able to answer four questions. First, does it measure what it claims to measure? Second, does it produce consistent evidence? Third, is it fair across language, gender, disability, socio-economic, and regional contexts? Fourth, is the score being used for an appropriate decision?

This is particularly important when measuring sensitive constructs such as student wellbeing, self-concept, motivation, social maturity, emotional maturity, inclusive education support, teacher self-efficacy, or school climate. A poorly designed tool can stigmatise learners, misjudge teachers, misclassify schools, or mislead policymakers. Therefore, the monograph argues for a tool-development process that includes construct definition, dimension mapping, item writing, expert validation, pilot testing, item analysis, validity evidence, reliability evidence, scoring procedures, interpretation guidelines, translation review, and ethical safeguards.

The purpose of measurement should be support, not surveillance. A diagnostic learning assessment should identify learning gaps and guide remediation. A student wellbeing tool should guide counselling and support. A teacher capacity scale should guide professional development. An inclusion checklist should help schools remove barriers. A programme evaluation tool should support improvement and redesign. Measurement should never reduce children, teachers, or schools to fixed labels.

The E-PME Framework: Eight Pillars

Pillar 1: Learning Outcome and Competency Assessment

The first pillar focuses on measuring learning outcomes, grade-level competencies, foundational skills, subject understanding, reasoning, application, and diagnostic gaps. Learning assessment should move beyond marks and certification. It should help teachers, schools, districts, and states identify what learners know, what they can do, where they are struggling, and what support is required.

This pillar is aligned with NEP 2020's call for assessment that is formative, competency-based, and focused on learning and development. It is also aligned with PARAKH's mandate for competency-based assessment, holistic progress cards, and large-scale achievement surveys. PARAKH states that its activities include competency-based assessment for holistic development, development and dissemination of Holistic Progress Cards, large-scale achievement surveys, and national system health check-ups through assessments such as NAS and FLS.

For state policy, learning outcome measurement should include diagnostic assessments, competency-wise reporting, test blueprints, rubrics, classroom-based formative assessment, follow-up assessment, and remedial linkage. NAS and PARAKH-type assessments can provide system-level evidence, but classroom and school-level diagnostic tools are needed to identify learner-level gaps and guide instruction.

Pillar 2: Psychometric Scale Development and Validation

The second pillar focuses on developing and validating psychometric tools for policy and institutional use. These tools may measure motivation, self-concept, attitude, wellbeing, school climate, teacher effectiveness, digital readiness, inclusive education readiness, parent engagement, assessment literacy, and programme outcomes.

The framework recommends that every tool should begin with a construct map. A construct such as “teacher capacity” or “student wellbeing” should be broken into dimensions, indicators, and items. Items should be reviewed for clarity, relevance, developmental suitability, cultural sensitivity, bias, and scoring direction. Expert validation should include subject experts, psychometricians, practitioners, inclusion experts, and policy professionals. Pilot testing should examine field feasibility, item performance, response patterns, and reliability. Validation should be documented before large-scale use.

This pillar is essential because policy tools must be trustworthy. States should not use untested instruments for high-stakes or large-scale decisions. Every major psychometric tool should have a technical dossier including its purpose, target group, construct definition, item pool, expert validation, pilot evidence, validity evidence, reliability evidence, scoring procedure, interpretation guide, and ethical protocol.

Pillar 3: Student Support, Wellbeing, and Readiness Indicators

The third pillar expands the measurement agenda beyond academic achievement. Student learning is influenced by school readiness, learning readiness, motivation, self-concept, academic confidence, socio-emotional learning, wellbeing, emotional maturity, social participation, safety, belongingness, school climate, parent support, and home learning environment.

UNICEF’s work on school readiness and smooth transitions emphasises the need for quality, cohesive, and uninterrupted educational journeys for young learners. NEP 2020’s holistic progress-card vision also supports broader measurement of learners’ cognitive, affective, and psychomotor development, with parent-teacher engagement and information to support each learner.

Student support measurement should be ethical and non-stigmatising. It should not be used to label students as weak, immature, unmotivated, or problematic. Instead, it should help schools identify support needs and design appropriate responses, including counselling, mentoring, remedial teaching, peer support, parent engagement, school climate improvement, and referral pathways where needed.

Pillar 4: Teacher Capacity, Digital Readiness, and Pedagogical Effectiveness Measurement

The fourth pillar focuses on teacher capacity as the implementation engine of education reform. Teacher development should not depend only on generic training. It should be based on evidence of actual professional needs. Measurement can identify needs in teaching effectiveness, pedagogy, classroom practice, assessment literacy, digital integration, TPK, TCK, e-readiness, inclusive pedagogy, self-efficacy, and professional development priorities.

UNESCO’s ICT Competency Framework for Teachers is intended to guide pre-service and in-service teacher training on the use of ICTs across the education system and to support policy development and capacity building in digital education. This supports the view that digital readiness should be measured beyond device access. It should include digital confidence, pedagogical use, subject-specific integration, assessment use, accessibility, digital safety, and institutional support.

Teacher capacity measurement should be developmental, not punitive. It should use multiple evidence sources: self-assessment, classroom observation, student feedback, lesson-plan review, assessment artefacts, mentoring reports, and CPD records. Findings should guide targeted training, mentoring, peer learning, resource support, and school leadership improvement.

Pillar 5: Inclusive Education and Learning Support Measurement

The fifth pillar focuses on inclusive education beyond enrolment. Inclusion should be measured through learning support needs, classroom adaptations, accommodations, IEPs, remedial support, assistive technology use, resource teacher access, parent-school partnership, peer inclusion, participation, wellbeing, and learning progress.

NEP 2020 emphasises that students with specific learning disabilities require continuous support, early identification, appropriate technology, flexible curricula, and appropriate assessment tools to ensure equitable access and opportunities. It also highlights inclusion, equity, dignity, privacy, and sensitisation across the school system.

Inclusive education measurement should identify barriers rather than blame learners. A learner's low participation may reflect inaccessible materials, lack of assistive technology, teacher uncertainty, peer exclusion, language barriers, or lack of accommodations. Therefore, inclusion indicators must be linked to action: resource allocation, assistive devices, teacher training, classroom adaptation, resource teacher support, parent meetings, and peer sensitisation.

Pillar 6: Programme Evaluation Through Baseline, Midline, Endline, and Impact Indicators

The sixth pillar focuses on programme evaluation. Education programmes should be evaluated through baseline, midline, endline, and follow-up designs. They should distinguish inputs, processes, outputs, outcomes, and impact. NITI Aayog's DMEO describes the Output-Outcome Monitoring Framework as a system that maps financial outlays of schemes to intended outputs and outcome targets. Its monitoring resources also emphasise the use of monitoring data, output indicators, outcome indicators, and recommendations for programme improvement.

This logic is directly relevant to education. A remedial programme should not be evaluated only by the number of sessions conducted. A teacher training programme should not be evaluated only by attendance. A digital programme should not be evaluated only by devices distributed. An inclusive education programme should not be evaluated only by enrolment. Evaluation must assess whether learning improved, teacher practice changed, digital use became pedagogical, support reached learners, and equity gaps narrowed.

Baseline establishes the starting point. Midline supports course correction. Endline assesses outcomes. Follow-up examines sustainability. This evaluation cycle should be institutionalised in major state-level education programmes.

Pillar 7: Data Dashboards, Interpretation, and Policy Decision-Making

The seventh pillar focuses on dashboards as decision-support systems. Dashboards should not merely display data; they should help decision-makers interpret patterns, trends, gaps, alerts, and action priorities. UDISE+, PGI, NAS, and PARAKH-related data systems already show the growing importance of structured educational data. PGI 2.0 explicitly states that its architecture is based on monitoring interconnected matrices of inputs, outputs, and outcomes and developing quick response systems for course correction.

A good education dashboard should distinguish between need indicators and response indicators. A school with high learning gaps should not simply be marked as weak; the dashboard should show whether remedial support is available. A district with many identified support needs should not be penalised if it is doing better screening. A teacher capacity dashboard should guide CPD rather than punishment. An inclusion dashboard should track support, participation, and progress rather than only categories of disability.

The World Bank's SABER-EMIS framework highlights the importance of improving data collection, data management, and data use in decision-making to improve education systems and learning. The E-PME Framework builds on this idea by insisting that dashboards must include interpretation notes, data quality checks, equity disaggregation, and action triggers.

Pillar 8: Ethics, Equity, Transparency, and Responsible Use of Assessment Data

The eighth pillar governs all other pillars. Education data are sensitive because they concern children, teachers, schools, families, disabilities, learning difficulties, wellbeing, performance, and institutional quality. Ethical measurement requires purpose clarity, informed participation where relevant, privacy, confidentiality, anonymisation, restricted access, fairness review, non-stigmatising interpretation, and responsible reporting.

Equity must be built into measurement. Tools should be reviewed for language bias, gender bias, disability exclusion, caste and class assumptions, rural-urban bias, and cultural insensitivity. Data should be disaggregated responsibly by gender, disability, location, school type, socio-economic background, language, and other relevant variables, but should not be used to stigmatise groups or schools. SDG 4's commitment to inclusive and equitable quality education makes equity-sensitive measurement essential.

The ethical principle is clear: data should serve learners, teachers, and schools. Measurement should lead to support, not surveillance; improvement, not stigma; accountability, not punishment without context.

Policy Use of the E-PME Framework

At the state level, the E-PME Framework can support five major reforms.

First, it can strengthen **learning assurance**. States can use competency-based diagnostic tools to identify grade-level gaps, plan remediation, and monitor progress. This is essential for FLN, learning recovery, grade-level competency, and curriculum reform.

Second, it can improve **teacher professional development**. Teacher capacity measurement can help SCERTs and DIETs design need-based CPD in assessment literacy, digital pedagogy, inclusive teaching, subject pedagogy, classroom engagement, and student support.

Third, it can support **student wellbeing and school climate**. Readiness, motivation, self-concept, socio-emotional learning, belongingness, and safety indicators can guide counselling, mentoring, parent engagement, and climate improvement.

Fourth, it can strengthen **inclusive education**. Inclusion indicators can track whether children with disabilities, SLD, neurodiverse learners, and other learners requiring support are receiving accommodations, assistive technology, remedial teaching, peer inclusion, and learning support.

Fifth, it can improve **programme accountability and state capacity**. Baseline-midline-endline designs and dashboards can help education departments evaluate programmes, identify implementation gaps, support mid-course correction, and allocate resources more effectively.

Implementation Approach

The monograph recommends a phased state-level roadmap. In the first year, states should establish a State Psychometric Measurement and Evaluation Cell, audit existing tools and dashboards, identify priority domains, develop ethical data-use protocols, and pilot selected tools. In years one to three, states should validate priority tools, integrate indicators into district planning, link teacher capacity data with CPD, and introduce baseline-midline-endline evaluation in major programmes. In years three to five, states should institutionalise E-PME indicators in planning, budgeting, dashboard systems, teacher development, inclusion support, and programme evaluation.

SCERTs should lead tool development, assessment frameworks, teacher-training design, and state-level quality assurance. DIETs should function as district evidence and improvement hubs. BRCs and CRCs should support mentoring, classroom observation, remedial monitoring, and field interpretation. Universities should support psychometric validation, scale development, programme evaluation, and research. NGOs should align programme tools with state indicators and ethical protocols. Schools should use evidence for learning support, inclusion, teacher reflection, and parent engagement.

The framework does not call for over-measurement. It calls for intelligent measurement. States should prioritise essential indicators, avoid duplication, reduce reporting burden, and ensure that every tool has a clear purpose and action pathway.

Actionable Recommendations

1. Establish State Psychometric Measurement and Evaluation Cells. Each state should create a specialised unit within or linked to SCERT to guide tool development, validation, learning assessment, programme evaluation, dashboard interpretation, and ethical data use.

2. Make validation mandatory before large-scale use of tools. No student scale, teacher capacity tool, inclusion checklist, diagnostic assessment, or programme-evaluation instrument should be scaled without expert review, pilot testing, validity evidence, reliability evidence, scoring guidance, and ethical safeguards.

- 3. Link all diagnostic assessments with remedial action.** Learning assessments should identify specific competency gaps and automatically connect with remedial teaching plans, teacher support, follow-up assessment, and school-level learning improvement.
- 4. Develop state-level competency maps and assessment blueprints.** States should prepare grade-wise and subject-wise competency maps aligned with curriculum, textbooks, classroom assessment, NAS/PARAKH directions, and remedial education planning.
- 5. Build assessment literacy among teachers and academic functionaries.** Teachers, school heads, DIET faculty, BRCs, and CRCs should be trained in item writing, formative assessment, diagnostic feedback, rubrics, competency mapping, and ethical interpretation of learning data.
- 6. Use teacher capacity measurement to design need-based CPD.** SCERTs and DIETs should use evidence on pedagogical knowledge, assessment literacy, digital readiness, TPK, TCK, inclusive pedagogy, and self-efficacy to design targeted professional development.
- 7. Measure digital readiness beyond access to devices.** Digital education indicators should include access, functionality, teacher confidence, pedagogical use, subject-specific integration, accessibility, digital safety, student access, and institutional support.
- 8. Integrate student support indicators into school improvement planning.** Readiness, motivation, self-concept, wellbeing, SEL, safety, belongingness, school climate, and parent engagement indicators should be used for counselling, mentoring, school climate reform, and support planning.
- 9. Measure inclusion through support, participation, and progress.** Inclusive education dashboards should track accommodations, IEPs, assistive technology use, resource teacher access, parent-school partnership, peer inclusion, participation, wellbeing, and learning progress—not only enrolment.
- 10. Institutionalise baseline-midline-endline-follow-up evaluation.** Major education programmes should include baseline evidence, midline review, endline assessment, and follow-up evaluation so that policymakers can assess both immediate outcomes and sustainability.
- 11. Redesign dashboards as decision-support systems.** Education dashboards should include trends, equity disaggregation, context notes, data-quality alerts, interpretation guidance, and action triggers, rather than only rankings or colour-coded performance labels.
- 12. Adopt a state-level education data ethics protocol.** States should define rules for consent, privacy, anonymisation, access control, secure storage, sensitive-data reporting, non-stigmatising interpretation, and grievance redressal for assessment and psychometric data.

Conclusion of the Executive Summary

The future of education policy depends on the ability of systems to know accurately, interpret responsibly, and act fairly. Measurement is not merely about numbers. It is about making learning, support, capacity, inclusion, and programme performance visible so that policy can respond with intelligence and responsibility. The E-PME Framework offers a practical route for states to strengthen this capacity.

For India's long-term goal of **Viksit Bharat 2047**, education systems must assure learning for every child, support every teacher, include every learner, evaluate every major programme honestly, and use data ethically. Valid and reliable psychometric tools, competency-based assessments, student support indicators, teacher capacity measures, inclusion indicators, programme evaluation designs, and responsible dashboards can become powerful instruments of educational quality, equity, accountability, and state capacity. Measurement reform, therefore, is not only a technical reform. It is a foundational reform for a more just, capable, and developed India.

Key Policy Messages

1. Evidence-Based Education Policy Requires Measurement That Can Be Trusted

Education policy becomes stronger when decisions are based on evidence that is valid, reliable, ethical, and interpretable. Administrative data, enrolment records, infrastructure reports, and examination results are important, but they do not fully explain whether students are learning, whether teachers are prepared, whether schools are inclusive, or whether programmes are effective. Policymakers need measurement systems that can capture learning outcomes, student support needs, teacher capacity, digital readiness, school climate, inclusion, and programme impact. Evidence-based policy does not mean collecting more data mechanically; it means collecting the right data through the right tools and using it for improvement. Trustworthy measurement enables states to diagnose problems accurately, allocate resources fairly, monitor reforms responsibly, and build accountability around educational quality rather than only compliance.

2. Psychometric Tools Should Become Core Instruments of Education Governance

Psychometric tools are not only academic research instruments; they are practical tools for education governance. Properly developed scales, diagnostic tests, rubrics, observation schedules, readiness tools, and support indicators can help education departments understand realities that are otherwise invisible. Variables such as motivation, self-concept, wellbeing, school climate, teacher self-efficacy, inclusive readiness, digital readiness, and learning support needs cannot be measured through routine records alone. When psychometric tools are developed scientifically and used ethically, they help identify gaps, guide interventions, evaluate programmes, and strengthen institutional planning. States, SCERTs, DIETs, universities, NGOs, and assessment bodies should treat psychometric tool development as a policy capacity, not merely as a research activity.

3. Validity and Reliability Must Be Non-Negotiable Standards

No education tool should be used for policy decisions unless its validity and reliability have been examined. Validity ensures that the tool measures what it claims to measure and that its scores are appropriate for the intended decision. Reliability ensures that the tool produces consistent evidence across items, raters, time, or contexts. Without these standards, data may look scientific but lead to wrong conclusions. A student support scale may mislabel learners, a teacher capacity tool may misjudge professional needs, or a programme evaluation tool may exaggerate impact. Every large-scale tool should undergo expert review, pilot testing, item analysis, scoring review, fairness checks, and documentation. Measurement quality is therefore a matter of educational justice and public accountability.

4. Learning Assessment Must Move from Certification to Diagnosis and Improvement

Assessment should not only certify learning at the end of a term or grade. It should diagnose learning gaps, guide classroom teaching, support remediation, and inform state-level planning. Grade-level competency measurement can help identify whether learners are achieving expected outcomes in literacy, numeracy, subject understanding, reasoning, application, and problem-solving. Diagnostic assessment can show which specific concepts, skills, or prerequisites require support. When assessment results are linked with remedial teaching, teacher mentoring, and follow-up assessment, they become instruments of learning recovery and quality improvement. NAS, PARAKH-aligned assessments, classroom-based assessment, and state-level diagnostic systems should be connected into one coherent learning improvement cycle.

5. Student Support Indicators Are Essential for Understanding Learning Barriers

Student achievement is influenced by readiness, motivation, self-concept, wellbeing, emotional maturity, social participation, school climate, safety, belongingness, and family support. If these variables are not measured, education systems may wrongly treat low achievement as only an academic problem. Student support indicators help schools and policymakers understand whether learners feel safe, confident, included, motivated, and ready to learn. Such tools must be used sensitively and ethically. They should guide counselling, mentoring, remedial support, parent engagement, and school climate improvement, not labelling or stigma. A learner's low confidence or wellbeing concern should be treated as a support signal. Policy must recognise that learning quality and student support are deeply connected.

6. Teacher Development Should Be Based on Evidence of Actual Professional Needs

Teacher professional development should move beyond generic training models. Measurement can help identify actual needs in pedagogy, assessment literacy, classroom management, digital integration, inclusive education, subject teaching, socio-emotional support, and professional confidence. Teacher capacity tools, classroom observation rubrics, self-assessment scales, student feedback, lesson-plan reviews, and mentoring records can help SCERTs, DIETs, BRCs, CRCs, and school leaders design targeted CPD. Digital readiness, TPK, TCK, and e-readiness should also be assessed so that teachers receive relevant support for technology-enabled learning. Teacher measurement must be developmental, not punitive. Its purpose should be to strengthen professional practice, provide mentoring, and improve learning conditions.

7. Digital Readiness Must Be Measured Beyond Device Availability

Digital education cannot be evaluated only by counting devices, smart classrooms, platforms, or internet connections. True digital readiness includes access, functionality, teacher confidence, pedagogical integration, subject-specific digital use, student access, digital safety, inclusive accessibility, and institutional support. A teacher may have access to technology but may not know how to use it for formative assessment, differentiated instruction, simulations, feedback, or learner engagement. A school may report digital infrastructure but lack maintenance, connectivity, or training. Digital readiness measurement helps distinguish infrastructure gaps from capacity gaps. This evidence can guide digital CPD, platform improvement, content design, assistive technology planning, and equitable digital learning policy.

8. Inclusion Must Be Measured Through Support, Participation, and Learning Progress

Inclusive education should not be measured only by the enrolment of children with disabilities or disadvantaged learners. Real inclusion requires identification of support needs, classroom accommodations, IEPs, remedial support, assistive technology, resource teacher access, parent-school partnership, peer inclusion, wellbeing, participation, and learning progress. A child may be present in school but still excluded from meaningful learning. Inclusion indicators help policymakers understand whether schools are prepared to support diverse learners, including children with disabilities, SLD, autism, ADHD, language barriers, socio-economic disadvantage, and other learning support needs. These indicators must be used for support and resource allocation, not blame. Inclusion measurement should make barriers visible so that systems can remove them.

9. Programme Evaluation Must Follow Baseline–Midline–Endline Logic

Education programmes should not be judged only by expenditure, coverage, training numbers, or activity completion. They should be evaluated through baseline, midline, endline, and follow-up

designs. Baseline evidence establishes the starting point. Midline assessment enables mid-course correction. Endline assessment examines outcomes. Follow-up review checks sustainability. This approach is essential for remedial learning programmes, teacher training, digital education, inclusive education, counselling, school readiness, and assessment reform. Evaluation should include input, process, output, outcome, and impact indicators. A programme may distribute materials or train teachers, but the real policy question is whether learning improved, teaching changed, support reached learners, and equity gaps narrowed.

10. Dashboards Should Support Decisions, Not Merely Display Data

Education dashboards should be designed as decision-support systems, not decorative reporting platforms. A useful dashboard should show indicators, trends, gaps, disaggregation, alerts, context notes, and recommended actions. It should help state departments, districts, blocks, schools, and programme teams decide where support is needed, which groups are at risk, which interventions require correction, and which policies need redesign. Dashboards should distinguish between need indicators and response indicators. A school with high support needs should not be punished if it is actively providing remediation and inclusion support. Dashboard data must be interpreted carefully, with attention to context, data quality, equity, and implementation conditions.

11. Ethical Data Use Is Central to Educational Trust

Assessment and psychometric data involve children, teachers, schools, families, and sensitive personal information. Therefore, ethical safeguards must be built into every stage of measurement. Purpose clarity, consent, privacy, confidentiality, anonymisation, secure storage, access control, fairness review, and non-stigmatising interpretation are essential. Student wellbeing data should not be publicly exposed. Teacher self-efficacy data should not be misused for punishment. Inclusion data should not label children or families. Ethical data use means that evidence should lead to support, not surveillance; improvement, not stigma; transparency, not misuse. Without ethical safeguards, even technically strong measurement systems can damage trust and weaken reform.

12. Measurement Reform Is Essential for Viksit Bharat 2047

A developed India by 2047 requires an education system that can assure learning, strengthen equity, support teachers, include every learner, evaluate programmes honestly, and make policy decisions responsibly. Measurement reform is therefore not a minor technical agenda; it is a nation-building priority. Valid and reliable psychometric tools, competency-based assessments, student support indicators, teacher capacity measures, inclusive education indicators, programme evaluation systems, and ethical dashboards can help states build stronger education governance. When measurement is linked to action, it improves learning quality, strengthens accountability, and expands educational opportunity. Viksit Bharat 2047 requires not only more schools and schemes, but also better evidence, better decisions, and better learning for every child.



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