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Pedagogical pathways to 21st century skills in Ghana's senior high school curriculum

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ABSTRACT: Ghana's secondary curriculum identifies twenty-first-century competencies as a central outcome, yet the pedagogical routes through which those competencies are expected to develop are dispersed across policy, subject and assessment documents. This qualitative documentary analysis examined ten official documents issued by the National Council for Curriculum and Assessment, comprising two cross-curricular frameworks and eight senior high school subject curricula. Directed and inductive content analysis mapped pedagogical strategies, learning processes, intended competencies, assessment evidence and enabling conditions. Thirteen strategy families were identified. Learner-centred activity, collaboration, authentic application, project work, problem-solving, inquiry, technology use, inclusion and formative assessment formed the core architecture. The strongest strategy-skill links concerned critical thinking and problem-solving, creativity, communication, collaboration and digital literacy. Cross-subject comparison showed coherent national principles adapted to disciplinary practices. Alignment was strongest between learning indicators and pedagogical exemplars, but weaker in competency assessment, progression across year levels and implementation guidance. A six-layer alignment framework is proposed. The findings establish intended opportunities for skill development, not evidence of classroom enactment or learner attainment.

Keywords: *curriculum alignment; documentary analysis; Ghana; pedagogy; senior high school; twenty-first-century skills*

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Introduction

Education systems increasingly expect learners to do more than reproduce subject content. Learners are expected to use knowledge, solve unfamiliar problems, communicate evidence, collaborate, create useful products and participate responsibly in society. These expectations are commonly grouped under the label twenty-first-century skills. Although the label is contested, international frameworks repeatedly include critical thinking, problem-solving, creativity, communication, collaboration, digital or information literacy, self-direction, adaptability and citizenship (Pellegrino & Hilton, 2012; Voogt & Pareja Roblin, 2012). The central curriculum problem is therefore not whether these competencies should be named, but whether outcomes, teaching activities and assessment give learners repeated opportunities to practise and demonstrate them.

Ghana has placed this competence agenda within its pre-tertiary reforms. The National Pre-Tertiary Education Curriculum Framework combines foundational knowledge, core competencies, national values, inclusion, learner-centred pedagogy, formative assessment and technology use within a common national vision (National Council for Curriculum and Assessment [NaCCA], 2018). The current senior high school (SHS) curricula state that competence development requires movement away from rote memorisation and passive reception towards active, collaborative, inquiry-oriented, project-based, problem-oriented and practical learning. These recommendations appear in common curriculum introductions, subject-specific learning indicators, pedagogical exemplars, competence tags and assessment columns.

Collaboration and dialogue need operational criteria too. Cooperative-learning research stresses interdependence, individual accountability and group processing (Gillies, 2016) while dialogic pedagogy requires learners to build, challenge, and justify ideas (Cui & Teo, 2021). General instructions to work in groups are weak because they do not prevent domination or passive membership. Practical guidance would specify individual preparation, rotating roles, visible group products, random selection of presenters, peer explanation, personal reflection and criteria for evidence-based talk.

Technology integration showed the same difference between presence and purpose. Digital tools supported twenty-first-century learning when they expanded analysis, representation,

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creation, publication or access to evidence but added little when used only for Internet searching or slide display. This finding supports the view that digital skills overlap with information management, communication, creativity, and problem-solving (van Laar et al., 2017) and also supports UNESCO's (2023) warning that technology should be judged by educational purpose, equity, and context. Source credibility, bias, privacy, citation, and ethical participation should be made explicit across subjects.

The broad competence architecture of the curriculum is a strength, but operational attention is uneven. Critical thinking and problem-solving can be supported by many observable actions - analysing, comparing, interpreting evidence, and justifying conclusions. Creativity is supported through design and production but often lacks criteria for originality, usefulness, flexibility, or revision. Communication and collaboration are visible but difficult to assess fairly through a single group product. Self-direction, adaptability, and leadership are least secure because they are named more often than they are taught or assessed.

Assessment is, therefore, the critical weakness. For example, constructive alignment requires that the assessment should elicit a performance similar to that of the intended outcomes and the learning activity (Biggs, 1996). An innovative curriculum may recommend inquiry, but a test dominated by recall will point student attention back to memorization. For example, a group project may be completed, but if only factual accuracy is marked, collaboration remains invisible. Formative assessment is assessment for learning when evidence and feedback help learners close a performance gap (Black & Wiliam, 1998; Wisniewski et al., 2020). NaCCA's four cognitive levels and the integrated assessment columns create useful structural conditions. The teachers need actual performance tasks, concise analytic rubrics, feedback cycles, and examples of learner work.

The standard template balances national coherence with disciplinary variation. Transferable competencies should not look the same in every subject. Proof, argument, creativity and communication take different forms in Physics, Mathematics, English Language, Social Studies and Applied Technology. The next stage is to define subject-specific quality within a national progression. This would prevent the same competence label from being attached to tasks of very different depths.

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The implementation burden also must be treated as a system responsibility. Ghanaian studies report difficulties in teacher understanding, collaboration, training, and resources. The richer the curriculum becomes, the more it depends on teacher learning, time, materials, school leadership, and assessment reform. A teacher facing large classes, limited equipment, and examination pressure cannot solve structural constraints through enthusiasm. Low-resource alternatives, protected time for practical and project work, professional learning communities, and moderated performance tasks are required if the intended architecture is to become routine practice.

Conceptual and theoretical framing

Twenty-first-century competencies are not detachable techniques. Critical thinking in Physics involves evidence, models and causal explanation; critical interpretation in English Language involves texts, language choices and audience; civic judgement in Social Studies involves competing claims, values and consequences. Transfer therefore depends on disciplinary knowledge, opportunities to apply knowledge and metacognitive control rather than on generic skill slogans (Pellegrino & Hilton, 2012). Digital competence is similarly broader than device operation. It includes information evaluation, communication, creation, ethical participation and strategic problem-solving (van Laar et al., 2017).

Pedagogy is the mechanism connecting curriculum intention to learner performance. Active, project-based, inquiry, problem-based, collaborative, dialogic, experiential and formative-assessment approaches can support complex learning, but their effects depend on task quality, guidance, duration, accountability and feedback. Project-based learning is stronger when it includes a meaningful question, sustained inquiry, learner decisions, an authentic product or audience, feedback and revision (Bell, 2010; Chen & Yang, 2019). Inquiry produces better outcomes when guidance is calibrated rather than removed (Lazonder & Harmsen, 2016). Cooperative learning requires interdependence and individual accountability, not simply seating learners together (Gillies, 2016). Dialogic teaching requires explanation, justification and response to alternatives, rather than participation alone (Cui & Teo, 2021).

Social constructivism supplied the primary learning lens. It treats knowledge development as mediated through language, participation, cultural tools, collaboration and guided

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movement towards independent performance (Vygotsky, 1978). This lens directed attention to peer explanation, teacher scaffolding, learner agency and the use of local and digital tools. Constructive alignment supplied the curriculum lens. It requires intended outcomes, learning activities and assessment tasks to demand corresponding performances (Biggs, 1996). The analysis therefore did not accept a competency label as evidence of alignment. It examined whether learners were required to perform the competency and whether assessment could capture the quality of that performance.

The combined framework also recognised two constraints. First, a strategy in a curriculum document creates an intended opportunity, not proof of effective teaching or skill attainment. Second, an ambitious task may be inaccessible where time, class size, teacher expertise, materials, laboratories, devices or connectivity are inadequate. Alignment was therefore examined alongside progression, equity and implementation feasibility.

Method

The study used an interpretivist qualitative documentary-analysis design supported by directed and inductive content analysis (Bowen, 2009; Elo et al., 2014). Official curriculum documents were treated as authorised representations of educational purposes, legitimate pedagogy and expected evidence of learning. Analysis covered manifest content, such as named strategies and competence labels, and latent content, such as assumptions about learner agency, teacher guidance, resources and inclusion.

Criterion-based purposive sampling ensured official status, relevance to SHS education, current use, readability and substantive pedagogical content. Maximum-variation sampling then selected subjects representing technical and applied learning, natural sciences, mathematics, language arts, humanities, digital education and social sciences. The final corpus comprised ten documents: the national curriculum framework, the national assessment framework and eight SHS subject curricula. The corpus was frozen on 18 June 2026 to prevent uncontrolled version changes. Table 1 summarises the corpus.

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Table 1: Document corpus and analytical function

ID	Document	Year	Analytical function
DOC-01	National Pre-Tertiary Education Curriculum Framework (NaCCA, 2018)	2018	National goals, pedagogy, competencies, inclusion, ICT and assessment
DOC-02	National Pre-Tertiary Learning Assessment Framework (NaCCA, 2020)	2020	Assessment standards, cognitive demand and evidence
DOC-03	Applied Technology (NaCCA, 2023a)	2023	Design, production, projects and problem-solving
DOC-04	Biology (NaCCA, 2023b)	2023	Experimental inquiry and scientific reasoning
DOC-05	Physics (NaCCA, 2023g)	2023	Experimentation, modelling and problem-solving
DOC-06	Mathematics (NaCCA, 2023f)	2023	Reasoning, data inquiry and application
DOC-07	English Language (NaCCA, 2023d)	2023	Dialogue, debate, writing and multimodal communication
DOC-08	Social Studies (NaCCA, 2023h)	2023	Civic inquiry, community projects and values
DOC-09	Information and Communication Technology (NaCCA, 2023e)	2023	Digital production and information handling
DOC-10	Economics (NaCCA, 2023c)	2023	Data interpretation, policy problems and decision-making

The unit of analysis was a meaningful curriculum segment: a sentence, bullet, table entry, learning outcome, indicator, pedagogical exemplar, competence tag, assessment statement, resource note or inclusion provision. Repeated common front matter was coded once as national policy architecture and separated from subject-specific evidence. This prevented the same generic statement from being counted eight times. A strategy was recorded as present in a subject only when a subject-specific section contained a recognisable example of its underlying learning process.

The initial codebook contained three linked families. Strategy codes covered learner-centred activity, experiential and practical learning, project-based learning, problem-based learning and problem-solving, inquiry, collaboration, dialogic teaching, authentic learning, role play and simulation, cross-disciplinary learning, differentiation, technology-mediated learning and formative assessment. Competency codes included critical thinking and

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problem-solving, creativity, communication, collaboration, digital and information literacy, self-direction, adaptability, leadership, citizenship and social-emotional competence. Alignment codes captured explicit or implicit strategy-skill links, cognitive demand, assessment evidence, scaffolding, progression, feedback, Gender Equality and Social Inclusion (GESI), local relevance and resource assumptions.

Pilot coding across Mathematics, English Language and Applied Technology tested whether definitions captured contrasting disciplinary practices. Codes were merged, divided or clarified where necessary, after which the pilot sections were recoded. Analysis then proceeded through familiarisation, extraction, first-cycle coding, code refinement, category construction, strategy-skill mapping, cross-document comparison, alignment analysis, negative-case analysis and framework construction. Descriptive counts showed breadth across subjects but were not treated as statistical measures of curriculum importance. A peer review of a purposive subset was used to challenge ambiguous interpretations and refine decision rules; differences were discussed rather than converted into a mechanical reliability coefficient.

Trustworthiness was supported through authenticated sources, page-level extraction, a version log, an explicit codebook, separation of source text from analytic memos, negative-case analysis and reflexive notes. The study used public institutional documents and involved no human participants or private data. Ethical practice centred on accurate citation, restrained quotation and avoidance of claims about teachers or learners that the documents could not support.

Findings

The documents shared a standard architecture. Each subject curriculum linked national philosophy, twenty-first-century competencies, values, GESI, social and emotional learning, instructional expectations and assessment levels to subject strands, indicators, pedagogical exemplars, resources and assessment. This common template established a system-wide rejection of passive recall. The subject curricula then adapted the shared principles to disciplinary practices.

Thirteen strategy families were identified (Table 2). Learner-centred activity, collaboration, authentic learning, technology-mediated learning, inclusive pedagogy, formative

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assessment and project work appeared in all eight subjects. Dialogic teaching, problem-solving and experiential learning appeared in seven. Inquiry and cross-disciplinary learning appeared in six, while role play, simulation, games and creative performance appeared in four. The strategies frequently co-occurred. A single exemplar could combine mixed-ability grouping, a community problem, digital research, practical investigation, presentation and peer feedback.

Table 2: Document-level coverage of pedagogical strategy families

Strategy family	Subject coverage	Interpretive pattern
Learner-centred and active	8/8 (100%)	Learners explain, decide, investigate, create or present.
Collaborative or cooperative	8/8 (100%)	Groups discuss evidence and produce shared outputs.
Context-based and authentic	8/8 (100%)	Tasks connect knowledge to Ghanaian life, work and civic issues.
Technology-mediated	8/8 (100%)	Digital tools support research, analysis, production or communication.
Differentiated and inclusive	8/8 (100%)	GESI, grouping and varied resources widen participation.
Formative assessment and reflection	8/8 (100%)	Performance, feedback, reflection and revision are embedded.
Project-based	8/8 (100%)	Learners produce reports, artefacts, investigations or presentations.
Dialogic and talk for learning	7/8 (87.5%)	Debate, questioning and discussion mediate understanding.
Problem-based and problem-solving	7/8 (87.5%)	Learners analyse problems, alternatives and solutions.
Experiential and practical	7/8 (87.5%)	Hands-on work connects concepts with experience.
Inquiry and investigation	6/8 (75%)	Learners collect and evaluate evidence and reach conclusions.
Cross-disciplinary or holistic	6/8 (75%)	Tasks combine disciplinary, civic, digital or entrepreneurial practices.
Role play, simulation and creative performance	4/8 (50%)	Learners rehearse social, linguistic or decision situations.

Learner-centred and active learning functioned as the organising principle. Subject indicators used verbs such as investigate, design, demonstrate, construct, compare, debate,

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analyse, create, present, evaluate and reflect. These verbs positioned learners as performers of disciplinary practices. Mathematics required data collection, analysis and communication of findings; English Language included debate, collaborative writing and audience-oriented production; science subjects required experimentation and evidence-based explanation; Applied Technology required design and production; Social Studies used civic inquiry and advocacy; Economics used data and policy problems; and ICT emphasised digital production and information management.

Collaboration was present across all subjects, commonly through mixed-ability or gender-responsive groups. Stronger examples required shared reasoning, peer support and a joint product. Dialogic structures were especially visible in English Language, Social Studies and Economics through debate, brainstorming, Socratic discussion, presentation and response to alternative views. Weaker examples merely instructed learners to discuss in groups without specifying roles, individual accountability or the intellectual work expected.

Project-based learning appeared in every subject but was conceptually uneven. Strong examples involved inquiry, planning, production and presentation. Mathematics used data projects; Social Studies linked projects to community action; ICT used digital products; Applied Technology used design and production; and Economics used research and policy-oriented presentations. Some activities labelled project-based learning were brief classroom exercises with no sustained inquiry, revision, authentic audience or learner control. These were active tasks, but the label overstated their pedagogical design.

Problem-solving was one of the most explicit priorities. It involved identifying a problem, analysing causes or constraints, using evidence, considering alternatives and proposing or implementing a solution. Inquiry was strongest in Biology, Physics and Mathematics, but also appeared in Social Studies and Economics through research on policy and community conditions. The curricula supported guided inquiry more consistently than open inquiry. Materials, steps and expected products were often specified, while progression towards greater learner control was less clear.

Experiential and authentic learning connected concepts to performance and local contexts. Applied Technology, Biology, Physics and ICT relied heavily on practical work,

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demonstration, experimentation or production. Mathematics and Economics used real-life data and national conditions. English Language and Social Studies created experience through debate, civic issues and public communication. Contexts frequently referred to homes, schools, communities, Ghanaian industries, national development and work. The same authenticity created a feasibility risk where laboratories, devices, connectivity, field visits or specialist materials were assumed but not equally available.

Technology appeared in every subject. It was most meaningful when used to analyse data, model relationships, create multimedia products, publish findings, collaborate or access diverse evidence. It was shallow when reduced to searching the Internet, displaying slides or naming a device without source evaluation, ethical use, learner choice or knowledge creation. The curriculum's digital ambition was broad, but information verification, bias, privacy and misinformation were not consistently operationalised.

The skill architecture extended beyond the familiar four Cs. Critical thinking and problem-solving, creativity, communication, collaboration and digital literacy were the most consistently operationalised competencies. Self-direction, adaptability, initiative, leadership, citizenship, responsibility and social-emotional competence were present in general descriptions but less frequently tied to observable tasks and assessment criteria. Leadership was rarely connected to rotating roles or individual evidence; adaptability was rarely tested through changing constraints; and self-direction was often assumed rather than developed through goal-setting, monitoring and reflection.

Cross-subject variation was largely productive. Science and technology subjects emphasised experiment, modelling, design and evidence. Language and humanities emphasised dialogue, interpretation, perspective and civic communication. Mathematics combined formal reasoning with data projects, while Economics combined concepts with policy problems. The competencies were not confined to single subjects: communication appeared in science, digital literacy appeared in Mathematics and Economics, and citizenship appeared through values and inclusion across the curriculum. This pattern supported disciplinary development of transferable competencies rather than a detached generic-skills course.

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Constructive alignment was strongest between learning indicators and pedagogical exemplars. Outcomes requiring analysis were often paired with comparison, investigation or problem-solving; outcomes requiring creation were paired with design, writing, projects or digital production. Alignment weakened in assessment. Assessment columns were structurally adjacent to pedagogy and used four levels ranging from recall to extended critical thinking, but many entries lacked an actual task, rubric, success criteria or evidence for collaboration, creativity, communication, inquiry or self-direction. Progression was similarly incomplete. Content difficulty increased across years, but a cross-year continuum for autonomy, evidence quality, collaboration or digital judgement was usually implicit.

GESI and social-emotional learning were embedded throughout the templates. This was stronger than treating inclusion as a separate policy chapter. Mixed-ability grouping, respect for diverse views and inclusive participation appeared frequently. Yet some statements remained generic and did not change the task, resource format, support or assessment. Enabling conditions were also largely assumed. The recommended pedagogies require teacher expertise, time, assessment literacy, manageable grouping, materials, devices, connectivity, laboratories and leadership support. The documents supplied examples, but not a complete implementation plan for schools facing severe constraints.

Discussion

The findings disclose a pedagogical direction that is coherent rather than a set of methods at random. NaCCA expects that learning will be able to build and apply knowledge through guided participation, dialogue, inquiry, practical activity, production, and feedback. All these are aspects of social constructivism and other research that links meaningful learning to active engagement, supportive relationships, authentic contexts, and the application of knowledge (Darling-Hammond et al., 2020; Vygotsky, 1978 It also steers clear of setting up a false opposition between subject knowledge and transferable competencies. They are expected to think critically, collaborate, and create - through disciplinary content, not instead of learning that content.

Control should be more stringent under the curriculum's use of project-based learning. Meta-analytic evidence supports outcomes of project-based learning, contingent on structure, duration, guidance, and assessment (Chen & Yang, 2019; Zhang et al., 2024).

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Calling a short poster, presentation, or software exercise a project is just naming compliance. It might allow schools to claim competence-based teaching without providing the planning, inquiry, revision, and public accountability through which self-direction and creativity could develop. NaCCA should distinguish project work from full project-based learning and provide examples of minimum design features.

Inquiry and problem-solving were more defensible because the exemplars usually contained prompts, procedures, materials, or expected products. This reflects evidence that inquiry benefits from guidance rather than from unguided discovery (Lazonder & Harmsen, 2016). The unresolved issue is progression. SHS 1 could provide questions, method, and data structure; SHS 2 could allow learners to select methods and interpret less structured evidence; SHS 3 could require question formulation, justification of methods, management of limitations, and communication to an external audience. Without such progression, inquiry can remain teacher-scripted or become prematurely open.

Operational criteria can also be a dimension of collaboration and dialogue. For example, cooperative-learning research stresses interdependence, individual accountability, and group processing (Gillies, 2016) while that of dialogic pedagogy requires building, challenging, and justifying ideas (Cui & Teo, 2021). Generic instructions to work in groups are weak because they do not prevent domination or passive membership. Practical guidance should specify individual preparation, rotating roles, visible group products, randomly selecting presenters, peer explanation, personal reflection, and criteria for evidence-based talk. Generic instructions to work in groups are weak because they do not prevent domination or passive membership. Practical guidance should specify individual preparation, rotating roles, visible group products, random selection of presenters, peer explanation, personal reflection and criteria for evidence-based talk.

Technology integration showed the same difference between presence and purpose. Digital tools supported twenty-first-century learning when they expanded analysis, representation, creation, publication or access to evidence. They added little when used only for Internet searching or slide display. This finding supports the view that digital skills overlap with information management, communication, creativity and problem-solving (van Laar et al., 2017). It also supports a warning by UNESCO that technology should be judged by

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educational purpose, equity and context (UNESCO, 2023). Source credibility, bias, privacy, citation and ethical participation should be made explicit across subjects.

The broad competence architecture of the curriculum is a strength but not the attention to operations. Many observable actions support critical thinking and problem-solving: analysis, comparison, interpretation of evidence, and justification of conclusions. Creativity is supported through design and production but often lacks criteria for originality, usefulness, flexibility, or revision. Communication and collaboration are visible but difficult to assess fairly through a single group product. Self-direction, adaptability, and leadership are least secure because they are named more often than they are taught or assessed.

This, therefore, is the critical weakness. Assessment should be able to pull a performance similar to that of the outcome and learning activity (Biggs, 1996). A curriculum may recommend inquiry, but a recall-dominated test will direct attention back to memorization. A group project may be completed, but collaboration will remain invisible if only factual accuracy is marked. Formative assessment supports learning when evidence and feedback help learners close a performance gap (Black & Wiliam, 1998; Wisniewski et al., 2020). NaCCA's four cognitive levels and integrated assessment columns create useful structural conditions, but teachers need actual performance tasks, concise analytic rubrics, feedback cycles and examples of learner work.

The common template achieves the right balance between national coherence and disciplinary difference. Transferable competencies should not look identical in every subject. Evidence, argument, creativity, and communication will take different forms in Physics, Mathematics, the English Language, Social Studies, and Applied Technology. The next stage should define the subject-specific quality within a national progression — this would preclude attaching identical competence labels to tasks of very different depth.

The implementation burden must also be treated as a system responsibility. Studies in Ghana report problems with teacher understanding, collaboration, training, and resources. The richer the curriculum becomes, the more it depends on teacher learning, time, materials, school leadership, and assessment reform. A teacher facing large classes, limited equipment, and examination pressure cannot solve structural constraints through

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enthusiasm. Low-resource alternatives, protected time for practical and project work, professional learning communities, and moderated performance tasks are required if the intended architecture is to become routine practice.

NaCCA pedagogy-skills alignment framework

The analysis produced a six-layer framework (Figure 1). It is an analytical framework, not a validated causal model. Its practical unit is the outcome-strategy-process-skill-assessment chain. Curriculum developers and teachers should be able to answer five questions for any learning indicator: What knowledge and performance are expected? Which strategy creates that performance? What will learners actually do? Which competence will be practised? What evidence and criteria will show quality? Weak or missing answers indicate weak alignment.

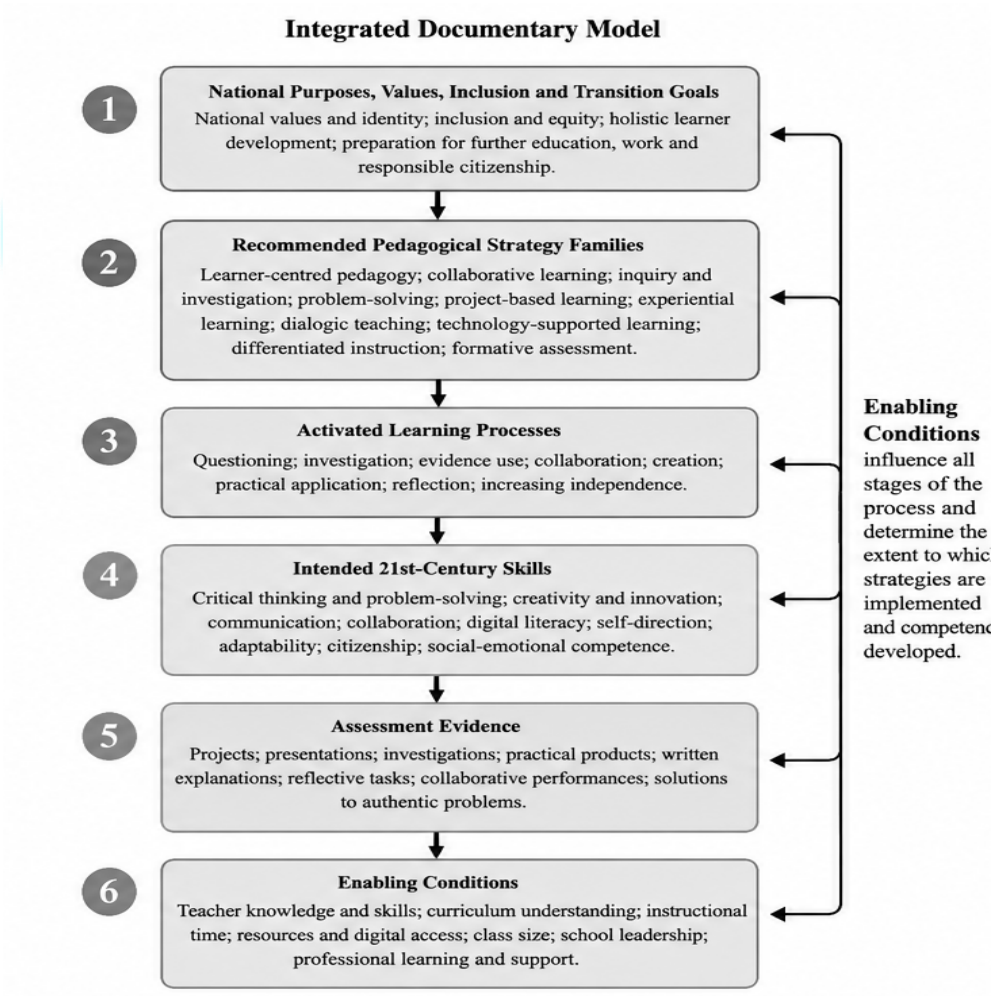

Figure 1. Integrated documentary model of NaCCA-recommended pedagogies and twenty-first-century skills.

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Two tests cut across all six layers. The first is progression: tasks, guidance, learner independence and performance quality should become more demanding from SHS 1 to SHS 3. The second is equity: each task, resource and assessment should be examined for who can participate, who may be excluded and what adaptations are necessary. These tests prevent a single curriculum mention from being treated as evidence of meaningful competence development.

Conclusion and implications

NaCCA's SHS curriculum contains a broad and recognisable architecture for developing twenty-first-century competencies. It embeds active learning, project work, problem-solving, inquiry, collaboration, dialogue, practical application, technology, inclusion and formative assessment within subject curricula. Its strongest achievement is the integration of common national goals with disciplinary learning. Communication is not reserved for language subjects, digital literacy is not reserved for ICT, and problem-solving is not reserved for Mathematics.

The architecture is incomplete. Some strategy labels are imprecise, assessment guidance is less detailed than pedagogical guidance, progression in competence quality is largely implicit, and resource assumptions may restrict equitable enactment. Leadership, adaptability, media literacy and self-direction are less operationalised than critical thinking, creativity, communication, collaboration and digital literacy.

Curriculum revision should therefore prioritise four tasks: define strategy labels with subject examples; publish a cross-year competence progression; supply performance tasks and concise rubrics for complex competencies; and provide low-resource alternatives without lowering cognitive demand. Teacher professional development should use complete learning sequences rather than isolated techniques and should include inquiry scaffolding, accountable collaboration, inclusive task design, digital information judgement and assessment of process as well as product.

The central conclusion is deliberately limited. The documents create intended opportunities for learners to practise complex competencies. They do not establish the quality of classroom enactment, equitable participation or learner attainment. Classroom observation,

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teacher interpretation studies and authentic learner assessments are required to test whether the intended architecture survives contact with school conditions.

Limitations

The study analysed authorised documents rather than classrooms and cannot determine how often teachers use the strategies or whether learners develop the intended competencies. The sample represented eight contrasting subjects rather than every SHS curriculum. Coding involved interpretation, especially where strategy-skill links were implicit. Page-level evidence, an explicit codebook, negative-case analysis and peer review reduced but did not remove subjectivity. Finally, documents were frozen on 18 June 2026; later revisions or implementation materials may clarify weaknesses identified here.

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