

How Curriculum–Job Alignment Becomes Career Commitment: A Grounded Theory Study of Chinese Higher Vocational NEV Education

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Abstract

Vocational curriculum reform is frequently evaluated through formal standards, graduate employment, or employer satisfaction, yet these indicators do not fully explain how learners interpret training as a reason to remain in an occupation. This qualitative study develops an educational mechanism linking curriculum–job alignment, learning experience, and career commitment in Chinese higher vocational New Energy Vehicle (NEV) programs. Twenty-nine participants were theoretically sampled from four positions along the training-to-work pathway: 10 enterprise stakeholders, eight vocational teachers, seven recent graduates, and four current students. Semi-structured interviews elicited concrete accounts of curriculum relevance, teaching, equipment, assessment, workplace exposure, entry readiness, and decisions to stay in or leave NEV technical work. Constant comparison and grounded-theory coding produced 34 initial categories and 13 reported axial categories, which were integrated into four blocks: curriculum–job alignment, learning experience, career commitment, and contextual interaction. The core process is a staged mechanism. Alignment first supplies structural credibility by showing that school tasks correspond to current tools, safety procedures, diagnostic logic, and workplace accountability. Learning experience then internalizes that credibility through teacher boundary-spanning, authentic resources, performance-based assessment, learner activation, and goal clarity. Career commitment is expressed as willingness to stay, professional involvement, and within-field progression planning. Workplace conditions influence whether dissatisfaction produces employer switching or occupational exit. The findings reposition career commitment as an educationally developable outcome rather than a fixed learner disposition. A practical implication is that curriculum updating, pedagogy, assessment, career guidance, and workplace exposure must be governed as one continuous system.

1. Introduction

Technical and vocational education and training (TVET) is expected to support productive

employment while enabling learners and economies to navigate digital and green transitions (UNESCO, 2022). In China, the revised vocational education law and subsequent reform measures emphasize responsiveness to industry and require core courses to incorporate current technologies, processes, and job practices (Ministry of Education of the People's Republic of China [MOE], 2022, 2023). These expectations are especially visible in New Energy Vehicle (NEV) education. NEV inspection and maintenance now integrates high-voltage safety, electronic control, software-enabled diagnostics, data interpretation, documentation, and cross-disciplinary troubleshooting. Consequently, a curriculum that was adequate when approved may become misaligned with work before the next major revision.

Formal curriculum updating is necessary but does not explain how students decide that NEV work is a field in which they can and want to remain. Graduate employment rates reveal whether learners enter work; they do not show whether learners identify with the occupation, accept its responsibilities, or imagine a future within it. Career commitment is therefore treated here as an educationally relevant outcome: willingness to remain in the NEV field, invest effort, assume professional responsibility, and plan advancement within the occupation.

The school–work relationship is not a simple transfer channel. Educational and workplace practices have different purposes, roles, language, and accountability. Boundary-crossing research shows that these differences can become resources for learning when people and artifacts connect practices rather than obscure their boundaries (Akkerman & Bakker, 2011). Work-integrated learning similarly develops professional identity when workplace participation is intentionally connected to curriculum, feedback, reflection, and assessment (Billett, 2009; Ferns et al., 2025; Jackson, 2017). Yet much of this literature examines employability or professional identity in higher education broadly. The mechanism through which curriculum–job alignment shapes occupational commitment in fast-changing Chinese higher vocational fields remains underexplored.

This study asks: How do participants across the vocational training-to-work pathway explain the process by which curriculum–job alignment strengthens or weakens students' career commitment in the NEV field? Rather than imposing a predetermined variable model, grounded theory was used to construct a process explanation from the accounts of students, graduates, teachers, and enterprise stakeholders.

2. Conceptual Sensitization

Three bodies of scholarship sensitized, but did not predetermine, the analysis. Constructive alignment connects intended outcomes, teaching, and assessment (Biggs, 1996); vocational education adds occupational tasks, tools, standards, and responsibility as an external referent. Authentic assessment focuses attention on resemblance to professional practice in tasks, settings, performance, and criteria (Gulikers et al., 2004). Professional identity scholarship treats learning as participation and interpretation rather than knowledge acquisition alone (Lave & Wenger, 1991; Trede et al., 2012). Work placements can strengthen a pre-professional identity when learners receive legitimate participation and help interpreting its meaning (Jackson, 2017). These concepts informed broad prompts about credibility, authenticity, belonging, and pathways while leaving the categorical structure open to the data.

3. Method

3.1 Design and participants

A constructivist grounded-theory orientation was used to develop an explanatory model through iterative sampling, coding, comparison, and memo writing (Charmaz, 2014; Corbin & Strauss, 2015). The study did not seek statistical representation. It sought theoretical coverage of the curriculum–learning–work interface and contrast between supportive, weak, and boundary cases.

Twenty-nine participants occupied four positions along the training-to-work pathway. Enterprise stakeholders articulated entry-level standards, readiness expectations, onboarding problems, and reasons for early turnover. Teachers explained curriculum updating, instructional and equipment constraints, assessment, and career guidance. Recent graduates assessed transfer after entering work. Current students described classroom, laboratory, internship, and anticipated-career experiences.

Table 1

Composition and analytic contribution of the qualitative sample

Participant group	n	Primary analytic contribution
Enterprise stakeholders	10	Entry standards, authentic tasks, onboarding, retention signals
Vocational teachers/program staff	8	Curriculum enactment, resources, pedagogy, assessment, constraints
Recent graduates	7	Transfer to work, early employment, staying or exit decisions
Current students	4	Lived learning experience, anticipated roles, internship interpretation
Total	29	Multi-position triangulation across education and work

Initial recruitment maximized variation across roles and training stages. Later theoretical sampling targeted contrasts: engaging but outdated learning, current content delivered passively, high exposure that strengthened commitment, and exposure that produced doubt. Sampling continued until the properties of central categories and their relationships were sufficiently dense and additional interviews did not alter the core process.

3.2 Data collection and ethics

Semi-structured interviews balanced comparability across groups with space for concrete episodes. Questions addressed: what it means to stay in NEV work; which school tasks corresponded to work; where disconnects appeared; how teachers, equipment, assessment, and feedback affected confidence; how occupational roles and progression were explained; and how internships or early jobs changed career plans. Scenario prompts referred to safety procedures, diagnostic sequences, documentation, communication, and responsibility, but participants were encouraged to supply their own examples.

Interviews were conducted in settings intended to reduce performance pressure. Participation was voluntary and unrelated to grades, placement, or employment decisions. Interviews were recorded with consent where feasible; otherwise, detailed contemporaneous and post-interview notes were produced. Identifiers were removed, role labels were used during analysis, and enterprise-specific incidents were generalized in reporting.

3.3 Analysis and trustworthiness

Analysis proceeded through initial/open coding, axial integration, and selective coding. Initial

coding remained close to actions and consequences in the data: for example, updating tools, rehearsing safety accountability, defending diagnostic reasoning, seeing a role pathway, and reconsidering occupational exit. Constant comparison examined the same code across roles and compared cases in which similar educational conditions produced different outcomes. Analytic memos recorded emerging definitions, conditions, consequences, and decisions to combine or separate categories.

The analysis produced 34 initial categories. The source dissertation's axial-coding table reports 13 higher-order categories; these were organized into curriculum–job alignment, learning experience, career commitment, and contextual interaction. Selective coding then identified a core process capable of integrating all blocks. Trustworthiness was strengthened through role triangulation, a coding audit trail, reserved-transcript checks after a provisional model had been formed, systematic examination of negative and boundary cases, and member checking. These procedures address credibility, dependability, confirmability, and transferability in naturalistic inquiry (Lincoln & Guba, 1985). The model is interpretive and process-oriented; it does not claim population prevalence or statistical causality.

4. Findings

The core category was: curriculum–job alignment shapes career commitment through the lived learning experience. Participants did not describe commitment as a simple preference for vehicles or technology. Commitment developed when learners interpreted training as credible preparation for consequential work and internalized that credibility through repeated educational experiences.

4.1 Stage 1: Alignment supplies structural credibility

Participants judged alignment through four features: coverage of entry competence in inspection, diagnosis, and maintenance; adaptation to current technology and standards; fidelity to workplace processes, including safety checks, documentation, and responsibility; and professional conduct. Outdated tools or legacy routines created expectations of “starting again” after employment. One student described the consequence: “What school taught was outdated or just didn’t match what the company uses.”

Alignment made the occupational pathway believable. Learners read recognizable tasks and standards as evidence of labor-market value, while enterprise stakeholders associated the same correspondence with easier onboarding and safer novice participation. An enterprise respondent set the threshold plainly: “A graduate should already be able to carry out high-voltage safety checks without supervision.” Participants assessed alignment at task level: a nominally relevant module remained misaligned if it used obsolete tools, isolated procedures from diagnostic logic, or assessed recall instead of safe performance.

4.2 Stage 2: Learning experience internalizes credibility

Alignment did not automatically become commitment. Five dimensions of LE translated structural relevance into a personal sense of competence and belonging.

Teacher boundary-spanning. Participants valued teachers who translated workplace standards into understandable purposes and connected tasks with entry roles. Technical currency alone was insufficient if occupational meaning remained invisible. Enterprise co-teaching and teacher industry updating strengthened credibility when integrated with the course.

Authentic resources and settings. Current tools, software, and safety equipment made alignment observable, but authenticity depended on use rather than possession. Learners needed full problem sequences requiring evidence, checking, and documentation (Billett, 2009; Ferns et

al., 2025).

Performance-based assessment. Demonstrating and explaining a diagnostic decision, responding to questions, and documenting a procedure made standards public and consequential. A graduate explained: “After you learn it, you have to present it in your own words... assessing other groups shows you the standards.” Students therefore encountered professional judgment before employment.

Capability and agency activation. Case-, project-, and problem-centered activity required learners to interpret information, justify action, cooperate, and recover from error. Successful participation generated evidence of capability; passive delivery left even current content psychologically distant.

Goal clarity. Role maps and realistic examples showed what entry positions required and how progression could occur, converting diffuse interest into an achievable sequence.

4.3 Stage 3: Commitment appears as staying, involvement, and progression

Career commitment had three observable expressions. The first was willingness to remain in the NEV field rather than treat it as a temporary option. The second was professional involvement: accepting responsibility, following standards, contributing to a workflow, and continuing to learn. The third was proactive within-field planning, such as moving from routine maintenance toward diagnostic specialization, process engineering, or technical coordination.

Commitment was therefore more than employment intention. A learner could accept a job without occupational identification, while a graduate could leave an employer but retain a clear NEV pathway. Strong CJA and LE supported a shift from “I studied this subject” to “this is work I can perform and develop in.”

4.4 Contextual interaction: employer switching versus occupational exit

Pay, promotion, management, safety pressure, and mentoring influenced whether early employment stabilized commitment. Some prepared graduates disliked their first organization but planned to move to another NEV employer; their occupational commitment remained intact. Weak alignment and LE combined with poor early employment made sector exit more plausible.

Education may therefore buffer the link between firm dissatisfaction and occupational abandonment: the problem may be the platform rather than the occupation. Program evaluation should distinguish employer retention from occupational retention.

Table 2

Grounded process model and corresponding educational levers

Process block	Core dimensions	Learner interpretation	Educational levers
Structural credibility: CJA	Basic competence; technology currency; authentic workflow; professional conduct	“Training corresponds to real entry work.”	Rolling task maps; current standards/tools; enterprise review
Pedagogical internalization: LE	Teacher boundary-spanning; authentic resources; performance assessment; capability activation; goal clarity	“I can perform, explain, and improve.”	Industry-updated teaching; authentic sequences; feedback; role maps

Process block	Core dimensions	Learner interpretation	Educational levers
Occupational commitment	Willingness to stay; professional involvement; within-field planning	“This is a field in which I can develop.”	Mentoring; progression pathways; portfolio evidence
Contextual interaction	Pay, promotion, culture, supervision, workplace pressure	“Should I change employer or leave the field?”	Placement quality assurance; mentor preparation; follow-up support

5. Discussion

The three-stage model extends constructive alignment beyond coherence within a course. In vocational education, alignment must remain connected to changing work, and students must recognize that connection in everyday learning (Biggs, 1996). LE explains why similar formal curricula may produce different commitments.

Current documents and equipment remain symbolic if teachers do not translate standards, students do not use tools in authentic sequences, assessment omits professional reasoning, and career routes remain obscure. Authenticity is relational: it lies in the connection among tasks, settings, criteria, participation, and occupational meaning (Gulikers et al., 2004).

Workplace exposure can strengthen commitment, reveal misalignment, or produce exit intentions. Its value depends on preparation, supervised responsibility, feedback, and post-experience interpretation, supporting WIL as deliberately integrated curriculum (Billett, 2009; Ferns et al., 2025; Jackson, 2017).

Teachers and enterprise mentors act as boundary brokers, while reports, safety checklists, rubrics, and portfolios can connect school and work (Akkerman & Bakker, 2011). These objects help learners compare standards and translate expectations. School–enterprise cooperation should therefore produce shared educational objects and feedback loops, not only placement agreements.

5.1 Implications for curriculum governance

First, alignment should be governed as a rolling cycle. Module-level task maps can identify occupational tasks, tools, safety requirements, evidence, and assessment criteria. Scheduled enterprise review can trigger targeted updates without waiting for complete redesign (MOE, 2023).

Second, teacher development should include boundary-spanning capability. Industry updating is useful when teachers return with task sequences, cases, standards, and evidence that can be transformed into instruction.

Third, assessment should reproduce professional accountability at a safe scale: students demonstrate procedures, justify decisions, document evidence, correct errors, and reflect on consequences.

Fourth, workplace exposure should be staged from observation to supervised tasks and later bounded responsibility. A pre-brief/on-site/post-brief cycle can connect activity to safety, mentor feedback, portfolio evidence, and career planning (OECD, 2023; UNESCO, 2022).

Finally, quality indicators should distinguish job entry, firm retention, and occupational retention, and ask whether graduates remain in NEV work, accept increasing responsibility, and

see a progression route.

5.2 Limitations

The model was constructed in one regional NEV education ecosystem and reflects a safety-critical, rapidly changing technical field. Transfer to other occupations should be analytic rather than automatic. Although the sample triangulated education and enterprise positions, the evidence relied on interview accounts rather than prolonged workplace observation. Future research should follow learners longitudinally across curriculum, internship, and early employment; combine interviews with task artifacts and supervisor judgments; and test the model in fields such as robotics, intelligent manufacturing, and hydrogen systems. Quantitative studies may examine the relative strength of pathways, but should preserve the distinctions between structural alignment, lived LE, firm retention, and occupational commitment.

6. Conclusion

Career commitment in higher vocational NEV education is not adequately explained as a stable preference possessed by the student. It is constructed through an educational ecology. Curriculum–job alignment makes the training pathway credible; learning experience converts credibility into competence, identity, and future orientation; workplace conditions then test whether that commitment attaches to a particular employer or to the occupation more broadly. Curriculum reform, pedagogy, assessment, career guidance, and workplace exposure should consequently be managed as a single continuity from school learning to responsible participation in work.

Ethics statement

Participation was voluntary, informed consent procedures were used, and interview data were anonymized and handled confidentially. No ethics approval identifier was reported in the source dissertation.

Data availability statement

Interview data are not publicly available because they contain potentially identifiable educational and workplace narratives. De-identified materials may be considered on reasonable request, subject to consent and institutional requirements.

Conflict of interest

The author declares no conflict of interest.

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