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Article

Exploring How Mentor Incentive Mechanisms in the Context of Resource Allocation Promote Sustainable Quality Enhancement in Residency Training: An Educational Phenomenology Study

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Abstract: This qualitative study explores how mentor incentive mechanisms shape educational experiences and learning outcomes within residency training programs, adopting an interpretive paradigm to understand participants' lived experiences. Through in-depth interviews with 42 participants—24 clinical mentors and 18 residents—across provincial and municipal tertiary hospitals in nine provinces spanning eastern, central, and western China, we employed thematic analysis to uncover rich narratives about teaching practices and educational resource dynamics from dual perspectives.Five key themes emerged. First, incentive structures were dominated by material rewards, while recognition of teaching excellence and pedagogical development opportunities remained undervalued, with notable disparities favoring eastern regions. Second, educational resource accessibility emerged as a crucial bridge connecting incentive experiences to teaching effectiveness, suggesting mentors' motivation translates into quality instruction primarily through enhanced resource utilization rather than direct pathways. Third, different incentive forms fostered distinct educational processes: compensation stability enabled sustained mentor-learner relationships, professional development opportunities enriched teaching methodologies, while collegial recognition cultivated collaborative learning environments. Fourth, training outcomes revealed multidimensional learning trajectories, with technical competencies developing strongly while higher-order clinical reasoning and professional identity formation required deeper mentorship attention. Fifth, enhancing residency education demands constructing layered recognition systems responsive to diverse mentor needs, strengthening pedagogical resource infrastructure, and establishing continuous dialogue mechanisms between educators and learners. These findings illuminate how institutional recognition practices shape teaching commitment and learner development in professional education settings.

Keywords: Residency Training; Mentor Incentive Mechanisms; Resource Allocation Efficiency; Training Quality; Medical Education

1. Introduction

Standardized residency training represents a critical phase in physician professional development within China's medical education continuum, directly shaping clinical competence and patient care outcomes. As healthcare education faces mounting pressures to cultivate skilled practitioners, understanding how to nurture teaching excellence through meaningful recognition of educator contributions has emerged as a central concern in medical pedagogy. China's standardized residency training system, established nationally in 2014, differs fundamentally from Western

models like the ACGME-accredited programs in the United States. Unlike the employment-based Western model, where residents are hospital employees with structured contracts, Chinese residents navigate a dual-identity system: they remain affiliated with their medical schools while training in teaching hospitals, creating ambiguous employment relationships and fragmented responsibility for educational quality. Training duration spans three years across all specialties (versus variable lengths in Western systems), with mentorship structured through the "one-on-one tutorial system" where each resident is paired with a designated attending physician—a more hierarchical arrangement than Western team-based supervision. Critically, teaching hospitals receive government subsidies for training, but compensation mechanisms for clinical educators remain poorly standardized, unlike the protected academic time and teaching stipends common in Western academic medical centers. These structural distinctions mean that incentive mechanisms operate within a unique institutional ecology where recognition practices must navigate unclear accountability structures and limited pedagogical infrastructure—contexts demanding China-specific investigation rather than direct application of Western findings. Educational theory offers essential lenses for examining this challenge, particularly frameworks addressing adult learning, situated practice, and professional identity formation in clinical settings.

Contemporary scholarship in professional education highlights the complexity of teaching and learning in practice-based environments. Knowles' andragogy principles emphasize that adult learners thrive when education connects to authentic professional contexts and respects their emerging expertise [1]. Lave and Wenger's situated learning theory further illuminates how novice physicians develop competence through legitimate peripheral participation in clinical communities of practice [2].

Teacher motivation research provides additional theoretical grounding for understanding clinical educator engagement. Self-determination theory distinguishes intrinsic motivation—driven by professional fulfillment and pedagogical passion—from extrinsic motivation rooted in external rewards [3].

Against this educational backdrop, Chinese residency programs face particular challenges in sustaining teaching quality. Clinical mentors report experiencing insufficient recognition for teaching contributions, limited access to faculty development, and unclear institutional priorities regarding education versus clinical service. These conditions raise fundamental questions about how medical institutions can cultivate teaching cultures that support both educator wellbeing and trainee learning. While previous research has examined structural features of residency programs, less attention has focused on educators' lived experiences of teaching and how institutional recognition practices shape their pedagogical engagement and students' learning journeys.

This study addresses this gap by exploring how mentor recognition and support systems influence the educational experiences and developmental outcomes within residency training. Drawing on interpretive qualitative methodology, we examine clinical educators' perspectives on teaching motivation, institutional support, and the learning environments they cultivate. Specifically, we investigate how different forms of recognition—professional acknowledgment, development opportunities, and material support—shape mentors' teaching practices and ultimately residents' educational experiences. Our inquiry is guided by questions about how educators experience and interpret institutional recognition, how these experiences influence their pedagogical engagement and resource utilization, and how recognition cultures affect the quality of mentor-learner relationships and clinical learning environments. Through in-depth interviews with clinical educators across diverse hospital contexts, this research seeks to generate a nuanced understanding of the educational dynamics linking institutional support for teachers to trainee development outcomes, contributing both theoretical insights into professional education and practical knowledge for strengthening clinical teaching cultures in medical settings.

2. Materials and Methods

2.1. Research Design

This study adopted a constructivist-interpretive qualitative approach to understand how clinical educators experience institutional recognition systems and how these experiences shape teaching practices and learner development within residency programs. The research embraced an epistemology that views knowledge as socially constructed through lived experience and meaning-making processes. Rather than seeking objective truths about recognition mechanisms, we aimed to illuminate the multiple realities and subjective understandings that mentors and residents bring to their educational relationships [4]. Operationalization of Phenomenological Methodology:

This study adopts an Interpretive Phenomenological Analysis (IPA) approach, focusing on how participants understand and ascribe meaning to institutional recognition practices, rather than merely describing objective recognition policies [5]. The analysis follows the four core steps of IPA: (1) Detailed reading and initial notation: Reading the transcribed texts line by line, annotating descriptive (what participants said), linguistic (how they expressed it), and conceptual (underlying meaning) notes; (2) Developing emergent themes: Transforming initial notations into concise thematic phrases that capture the psychological essence of participants' experiences, such as "the psychological liberating effect of material security"; (3) Identifying cross-case patterns: Recognizing shared experiential structures and individual variations through cross-case comparisons to construct thematic clusters; (4) Writing narrative interpretations: Integrating themes into a coherent narrative that balances participants' voices with the researcher's theoretical interpretation. To ensure ethical compliance, all participants are identified by pseudonyms (e.g., Dr. Zhang, Dr. Liu), with original names retained only in encrypted consent forms. The analytical process is documented in reflective journals and NVivo coding memos to support an audit trail. This systematic approach ensures the transparency and rigor of phenomenological inquiry [6].

Our inquiry centered on three interconnected phenomena: institutional recognition of teaching contributions, educational resource accessibility and utilization, and dimensions of professional learning in clinical settings. Recognition systems encompassed professional acknowledgment, career development support, and material conditions enabling teaching work. Resource dynamics included educator availability, pedagogical infrastructure, and scholarly support structures. Learning outcomes were understood through developing clinical capabilities, cultivating professional reasoning, and forming physician identities [7].

The qualitative methodology proved particularly appropriate for this investigation because institutional recognition operates through complex interpersonal and cultural processes that resist quantification. Educators' motivations, their interpretations of institutional support, and the nuanced ways these factors influence teaching relationships require methodological approaches that honor subjective experience and contextual variation. Qualitative inquiry allowed us to capture the richness of mentor narratives, the situated nature of teaching in different hospital environments, and the dynamic interplay between individual agency and institutional structures [8].

As a primary research instrument, I brought both insider and outsider perspectives to this work. My background in medical education provided familiarity with residency training cultures, facilitating rapport and enabling recognition of significant but unstated aspects of participants' accounts. Simultaneously, my position outside clinical practice created distance that supported analytical questioning of taken-for-granted assumptions. Throughout fieldwork and analysis, I maintained reflexive awareness of how my interpretive lens shaped data collection and meaning-making, regularly documenting assumptions, reactions, and evolving understandings in analytical memos.

Data collection occurred in authentic clinical teaching environments where mentors and residents engage in daily educational work. This immersive approach enabled observation of contextual factors influencing teaching and learning. The analysis sought to generate thick descriptions conveying the textured reality of participants' experiences and interpretive insights revealing patterns of meaning across diverse voices, rather than pursuing statistical generalizations or causal claims. Ethical approval was secured from the institutional review board before commencing fieldwork, and all participants provided informed consent.

2.2. Research Subjects and Sampling

Purposive sampling guided participant selection to ensure representation of diverse perspectives on teaching recognition and educational experiences. We recruited two primary groups: clinical educators serving as residency mentors and physicians currently undergoing residency training.

Mentor participants met these criteria: holding an associate chief physician rank or higher, actively supervising residents for at least two years, and maintaining regular teaching responsibilities. We excluded educators who recently changed positions, worked part-time arrangements, or were on extended leave, as these circumstances might limit their sustained engagement with institutional recognition systems. Theoretical Rationale for Purposive Sampling and Assessment of Data Saturation: This study employs a maximum variation sampling strategy, systematically incorporating diverse combinations of geographic regions (Eastern/Central/Western economic gradients), institutional scales (provincial/municipal hospitals), clinical specialties (five core departments), and career stages (supervisor title levels, residency training years) to ensure the capture of multiple manifestations of incentive mechanisms across different institutional ecologies and teaching contexts. Participant selection follows the principle of

information richness: supervisors must have at least two years of mentoring experience to accumulate deep insights into recognition practices; residents must have completed at least six months of training to develop relatively stable learning perceptions. Data saturation was dynamically assessed through the constant comparative method: after the 38th interview, new interviews no longer generated new thematic codes or substantive revisions to existing themes, indicating theoretical saturation. Eight subsequent interviews served as confirmatory sampling to verify thematic robustness. The potential impacts of inclusion/exclusion criteria require careful consideration: excluding part-time supervisors may omit voices from marginalized teaching groups; excluding residents with psychological distress, while ensuring narrative quality, may underestimate extremely negative experiences. However, these criteria ensure that participants can provide typical experiences of normalized incentive practices rather than extreme cases, aligning with this study's goal of revealing mainstream institutional operational mechanisms. This study ultimately included 18 residents (N = 18) and 24 supervisors (N = 24), totaling 42 participants. Resident inclusion criteria included: (1) age 22–35 years; (2) completion of at least 6 months of standardized training; (3) current rotation in internal medicine, surgery, obstetrics and gynecology, pediatrics, or emergency medicine; (4) voluntary participation and signed informed consent. Exclusion criteria: (1) those simultaneously pursuing professional degrees or research-oriented graduate programs (as dual training objectives may affect typical reporting of routine residency experiences); (2) those receiving professional intervention for mental health issues within the past 3 months; (3) those with training interruptions exceeding 1 month; (4) those with direct conflicts of interest with the research team. Resident sample distribution: 7 from Eastern regions, 6 from Central regions, 5 from Western regions; training years: 4 in R1 stage, 8 in R2 stage, 6 in R3 stage; 11 males, 7 females. This study was approved by the Medical Ethics Committee of Capital Medical University (Ethics Approval No.: 2024-MED-IRB-056), with all interviews completed between March and August 2024. A total of 18 resident participants were recruited, with ages ranging from 22 to 34 years (mean 28.3 years), a gender ratio of 11 males (61%) and 7 females (39%). Specialty distribution: 5 in internal medicine, 4 in surgery, 3 in obstetrics and gynecology, 3 in pediatrics, 3 in emergency medicine. Regional distribution matched the supervisor sample: 7 from Eastern regions, 6 from Central regions, 5 from Western regions. Training stages: 4 in the first year (R1), 8 in the second year (R2), 6 in the third year (R3), ensuring coverage of learning experiences across different developmental stages. Exclusion criteria included: those on leave for mental health issues, those simultaneously pursuing degree programs (such as professional degree graduate students), and rotating physicians with less than 6 months of training. All resident interviews lasted 35–50 min, focusing on their subjective experiences of supervisor guidance, resource access, and learning outcomes.

Our sampling strategy deliberately pursued variation across geographic regions and institutional contexts. We selected nine provinces spanning eastern, central, and western China to capture regional differences in healthcare infrastructure and educational cultures. Within each province, we included both provincial-level and municipal tertiary hospitals to represent different resource environments and organizational scales. Clinical departments—internal medicine, surgery, obstetrics-gynecology, pediatrics, and emergency medicine—were represented to encompass diverse teaching contexts. The final participant pool ranged from 18 to 27 individuals for in-depth interviews. We purposefully recruited senior educators and hospital education administrators for their accumulated wisdom and institutional memory regarding recognition practices. This sampling approach prioritized information richness and experiential depth over numerical breadth or statistical representativeness. Sample Composition and Final Analysis: This study ultimately recruited and completed interviews with a total of 46 participants, with the following specific composition: (1) 24 clinical supervisors (9 from Eastern regions, 8 from Central regions, 7 from Western regions), with title distribution of 12 chief physicians and 12 associate chief physicians, teaching experience ranging from 2–23 years (median 8.5 years); (2) 18 residents (7 from Eastern regions, 6 from Central regions, 5 from Western regions), covering R1–R3 training stages, with a gender ratio of 11 males and 7 females; (3) 4 hospital education administrators (2 directors of education departments from provincial teaching hospitals, 2 directors of medical education departments from municipal hospitals), with management experience of 5–15 years. All 46 interview recordings were successfully transcribed and included in NVivo thematic analysis. Data saturation was achieved after the 38th interview (new interviews did not generate new thematic codes), and the subsequent eight interviews were used to verify the robustness of the identified themes. The final research findings presented are based on systematic analysis of all 46 interview texts, with supervisor narratives constituting the primary data source (67% of coding nodes), resident perspectives providing validation of learning outcomes (28%), and administrator interviews providing institutional context supplementation (5%). To ensure contextual representativeness

of the study, **Table 1** presents the detailed distribution of participants across regions, institution types, and clinical departments. The sample covers China's three major economic-geographic regions (Eastern, Central, and Western), with each region including 1–2 tertiary Grade-A hospitals at both provincial and municipal levels. The clinical department distribution follows the five core specialty requirements for residency training bases (internal medicine, surgery, obstetrics and gynecology, pediatrics, emergency medicine), ensuring that teaching experiences across different clinical contexts are captured. Supervisors and residents were recruited in pairs from the same departments to enable cross-validation of both parties' perceptions of incentive mechanisms and learning environments [9,10].

Table 1. Regional, Institutional, and Departmental Distribution of Participant Sample (N = 46).

Characteristic Dimension	Category	Supervisors (n = 24)	Residents (n = 18)	Administrators (n = 4)	Total (n = 46)
Geographic Region	Eastern (Shanghai, Zhejiang, Jiangsu)	9	7	2	18
	Central (Henan, Hubei, Anhui)	8	6	1	15
	Western (Sichuan, Gansu, Xinjiang)	7	5	1	13
Hospital Level	Provincial tertiary Grade-A hospitals	14	11	3	28
	Municipal tertiary Grade-A hospitals	10	7	1	18
Clinical Department	Internal Medicine	6	5	-	11
	Surgery	5	4	-	9
	Obstetrics and Gynecology	4	3	-	7
	Pediatrics	5	3	-	8
	Emergency Medicine	4	3	-	7
	Education Administration	-	-	4	4

Note: The Eastern region includes the economically developed provinces and municipalities of Shanghai, Zhejiang, and Jiangsu; the Central region covers moderately developed Henan, Hubei, and Anhui; the Western region represents the relatively resource-scarce areas of Sichuan, Gansu, and Xinjiang.

2.3. Data Collection and Measurement Instruments

Semi-structured interviews constituted our primary data generation method. We developed distinct interview protocols for educators and administrators while maintaining thematic coherence. The mentor protocol explored four domains: experiences with current recognition practices, perceptions of educational resource availability and access, reflections on teaching relationships and effectiveness, and visions for improved institutional support. Each domain contained three to five open-ended questions designed to elicit narrative accounts rather than brief responses. Educator interviews typically extended 45 to 60 min. The administrator protocol addressed institutional policy development, educational resource decisions, approaches to supporting teaching quality, and strategic planning for faculty development, with conversations lasting 60 to 90 min. Examples of Core Interview Guide Questions: To enhance methodological transparency, **Table 2** presents representative questions from the interview protocols for each participant group. Supervisor interviews focused on four major themes: (1) Recognition experience: "Please describe how your institution recognizes your teaching contributions. Which forms of recognition are most meaningful to you?" (2) Resource relationships: "In your daily teaching, which educational resources are adequate? Which are lacking? How does this affect the way you mentor residents?" (3) Teaching practice: "Please share an experience when you felt your teaching was particularly effective. What factors contributed to that effectiveness at the time?" (4) Vision for improvement: "If you could change the existing supervisor support system, what would you prioritize for improvement?" Resident interviews explored learning experiences: "What kind of guidance has your supervisor provided in cultivating clinical reasoning? Please provide examples. "What factors do you think limit your learning quality?" Administrator interviews addressed policy-making logic: "What factors does your hospital mainly consider when designing supervisor incentive policies? What implementation challenges do you face?" All questions were accompanied by probing prompts (such as "Could you elaborate?" "What were your feelings at the time?") to elicit in-depth narratives [11].

Theoretical Alignment and Methodological Principles of Interview Question Design: The construction of the interview guide follows three major principles to ensure alignment with research objectives and theoretical framework [12]. First, theory-question mapping: questions in the recognition experience domain directly correspond to the competence, autonomy, and relatedness dimensions of Self-Determination Theory—asking "which recognition is most meaningful" aims to reveal intrinsic motivation sources; questions in the resource utilization domain echo Situated Learning Theory, exploring how material conditions shape communities of practice; questions in the

teaching efficacy domain test the recognition-identity-practice pathway posited by Teacher Identity Theory [13]. Second, openness and neutrality: all core questions employ open-ended phrases such as "please describe..." and "how do you understand..." avoiding closed or suggestive expressions like "do you think recognition is insufficient"; probing prompts ("Could you provide examples?" "What was the context at that time?") guide narrative depth rather than specific answer directions. Third, reflexive adjustment: pilot interviews (n = 3) tested question clarity and neutrality, and four overly academic question formulations were revised based on participant feedback to ensure clinical educators could naturally understand and respond. The interviewer (first author) received qualitative research methods training and continuously monitored their own reactions during interviews, avoiding suggesting "correct" answers through tone or follow-up questions, maintaining interpretive credibility [14].

Table 2. Examples of Core Interview Guide Questions.

Participant Type	Thematic Domain	Example Core Open-Ended Questions
Clinical Supervisors	Recognition Experience	"Please describe how your institution recognizes your teaching contributions. Among material rewards, honorary recognition, and career development opportunities, which are most meaningful to you? Why?"
	Resource Utilization	"In your daily teaching work, which educational resources are adequate? Which are lacking? How do resource conditions affect the specific ways you mentor residents?"
	Teaching Efficacy	"Please share an experience when you felt your teaching was particularly successful. What factors contributed to that effectiveness at the time? How did your sense of recognition influence that teaching episode?"
	Vision for Improvement	"If you could change the existing supervisor support system, what would you prioritize for improvement? What should an ideal recognition mechanism look like?"
Residents	Learning Experience	"What kind of guidance has your supervisor provided in cultivating your clinical reasoning abilities? Please provide specific case examples."
	Limiting Factors	"In your training process, what factors have limited learning quality? How do these limitations relate to your supervisor's time investment, teaching enthusiasm, or resource availability?"
	Professional Formation	"How do you understand 'becoming a good doctor'? In what ways has your supervisor influenced your understanding of the physician profession?"

All conversations were audio-recorded following participant consent. I maintained detailed field notes during and immediately following each interview session. These notes captured non-verbal communication, emotional undertones, contextual observations, and preliminary analytical impressions. Document review complemented interview data. We examined institutional policies addressing educator recognition, program guidelines for residency training, educational resource allocation reports, and faculty development materials. This methodological triangulation—combining participant narratives, observational insights, and documentary evidence—strengthened the credibility and trustworthiness of findings [15,16].

2.4. Data Analysis Methods

We conducted thematic analysis using NVivo software to manage and organize qualitative data. Analysis proceeded through iterative cycles rather than linear stages, with open coding, focused coding, and theoretical integration informing each other recursively. During initial open coding, I read and re-read interview transcripts attentively, assigning preliminary codes to meaningful text segments while preserving participants' language and conceptual frames. Balancing Inductive Theme Emergence with Theoretical Sensitivity: To ensure themes were inductively generated from the data rather than shaped by interview presuppositions, the analysis employed a mixed strategy to balance deductive and inductive orientations. Although the interview guide was constructed around four major inquiry domains (recognition, resources, teaching, vision) based on the theoretical framework, each domain included an open invitation: "Besides what we've discussed, are there other experiences you consider important but haven't yet mentioned?" This design prompted participants to introduce themes not preset by the researcher—for example, the theme of "supervisor occupational burnout and emotional detachment" was completely spontaneously raised by supervisors from Western regions and was not preset in the original theoretical framework; the theme of "resident peer learning networks" emerged from informal learning mechanisms actively described by multiple residents. Dur-

ing the open coding phase, analysts deliberately bracketed theoretical expectations, using participants' own words (in vivo codes) rather than theoretical terminology for initial notation—for instance, coding "feeling like an invisible person" (Dr. Liu's original words) rather than directly applying "professional identity crisis." During focused coding, the constant comparative method was used to examine relationships between emerging patterns and theoretical presuppositions: of the five final themes, three aligned with literature predictions (recognition structures, resource mediation, learning dimensions), while two were inductive discoveries (depth of emotional experience of geographic inequality, indirect effect of recognition on collaborative culture) [17,18]. This transparent deductive-inductive interaction ensured both the data-groundedness of themes and their theoretical dialogicality.

Focused coding organized initial codes into broader interpretive categories, identifying relationships and patterns across different participants and contexts. This phase involved constant comparison—systematically examining similarities and differences in how educators from various settings experienced recognition and described its effects on their teaching. Theoretical integration brought categories together into overarching themes addressing our central research questions about how institutional recognition shapes educational cultures and learning outcomes [19].

Throughout the analysis, I practiced methodological reflexivity by documenting analytical choices, interpretive tensions, and evolving understandings in regular memo-writing. Member checking occurred with selected participants who reviewed preliminary findings and offered feedback on whether interpretations resonated with their lived experiences. This validation step enhanced interpretive trustworthiness. We developed thick descriptions that conveyed the situated, contextualized nature of participants' experiences rather than decontextualized generalizations. The final presentation grounds interpretive insights firmly in mentor and resident voices, honoring their perspectives as educators and learners navigating residency training systems. These rigorous procedures—prolonged engagement, triangulation, member checking, reflexivity, and thick description—establish the credibility and dependability of our qualitative findings [20,21].

3. Results

3.1. Educators' Lived Experiences with Institutional Recognition

3.1.1. The Meaning of Recognition in Clinical Teaching Lives

Conversations with 24 clinical educators revealed how institutional recognition shapes their daily teaching experiences and professional identities. Three interconnected dimensions emerged from their narratives: material support for teaching work, professional acknowledgment of educational contributions, and opportunities for pedagogical growth. Each dimension carried a distinct emotional weight and influenced educators' sense of being valued as teachers [22].

Material support formed the foundation of educators' security in their teaching roles. Across all hospital settings, participants spoke about compensation as essential yet insufficient. Salary provided what one senior physician called "the baseline that allows us to show up," but rarely inspired pedagogical passion. Dr. Zhang from an eastern provincial hospital explained the paradox: "When compensation is adequate, I don't think about it—I can focus entirely on my residents' learning. But when it's inadequate, financial worry consumes energy I should be devoting to teaching. It's like trying to nurture others when you yourself feel undernourished." Performance bonuses generated mixed feelings. Some educators appreciated tangible recognition of teaching effort, while others found the evaluation criteria disconnected from authentic teaching quality. Welfare provisions addressed basic needs but rarely reached beyond minimum standards [23].

Professional acknowledgment—what participants often termed "being seen and valued"—emerged as the most emotionally charged dimension. Many educators described profound frustration with institutional invisibility despite years of dedicated teaching service. Dr. Liu, who has mentored residents in a central region hospital for fifteen years, captured this sentiment powerfully: "I have guided dozens of physicians who now practice across the country. Some have become department heads. But here, where I do the daily work of teaching, formal recognition rarely comes. It's as if the institution values research publications and clinical revenue while treating education as everyone's side job. That invisibility weighs on you over time." Honorary recognition proved particularly contentious. Participants described award systems as inconsistent, sometimes arbitrary, and frequently failing to honor the most dedicated educators. The gap between desired and received acknowledgment created what several called "a quiet

demoralization" among teaching faculty [24,25].

Opportunities for pedagogical development occupied a complex emotional terrain. Educators deeply valued chances to strengthen their teaching capabilities and advance their careers as clinical teachers. Dr. Wang from a municipal hospital described transformative experiences: "When I attended that national teaching workshop three years ago, everything changed. I learned active learning strategies, feedback techniques, ways to foster clinical reasoning I never knew existed. I returned energized, with concrete tools. That's what development opportunities do—they say 'your teaching matters enough for us to invest in making you better at it.'" Yet access remained profoundly unequal. Provincial hospitals offered structured faculty development programs connecting educators to national networks. Municipal hospitals struggled with constrained budgets, leaving many educators feeling professionally isolated. Promotion pathways generated particular tension. Several participants described opaque criteria that seemed to prioritize research productivity over teaching excellence, creating what one called "a hidden message about institutional priorities."

The hospital context shaped these experiences substantially. Educators in large provincial tertiary hospitals described more comprehensive recognition systems, though even these fell short of full validation. Smaller municipal hospitals faced resource constraints that limited recognition possibilities despite administrators' good intentions. Dr. Chen reflected on this structural challenge: "Our hospital leaders genuinely want to support teaching, but limited budgets force impossible choices. Development opportunities become scarce. Recognition becomes sporadic. We understand the constraints, but that doesn't ease the feeling of being undervalued."

These narratives reveal recognition not as a simple policy mechanism but as a deeply relational phenomenon shaping educators' professional identities and emotional investment in teaching. Material support provides security, professional acknowledgment offers dignity and visibility, and development opportunities enable growth—together constructing the affective and practical conditions through which clinical educators either flourish or struggle in their teaching lives.

3.1.2. Geographic Landscapes of Recognition: Teaching Experiences across Regions

The geography of recognition emerged powerfully in educator narratives. Conversations across eastern, central, and western China revealed not merely resource differences but fundamentally divergent cultures of valuing teaching work. These regional patterns shaped daily teaching experiences and career trajectories in profound ways.

Eastern region educators described institutional environments where teaching received sustained attention alongside clinical and research work. Dr. Zhou from a Shanghai hospital explained the cultural difference: "Here, excellence in teaching opens doors. The institution provides real development opportunities—international teaching conferences, mentorship training, and educational research support. Promotion committees actually examine teaching portfolios seriously. It's not perfect, but teaching feels like legitimate scholarly work rather than an obligation." Material support reached reasonable levels, reducing financial anxiety. Performance systems operated with relative transparency, though participants noted continued overemphasis on quantifiable metrics. Most significantly, professional acknowledgment occurred through regular mechanisms—departmental teaching awards, annual ceremonies honoring outstanding educators, and visible celebration of teaching achievements. One administrator articulated the philosophy: "We stopped treating educator development as an expense and started viewing it as a strategic investment in our educational mission." Yet even eastern educators expressed frustration with incomplete recognition, particularly around time protection for teaching activities [26,27].

Central region narratives reflected institutional ambivalence about teaching priorities. Dr. Li captured the tension: "Official policies say teaching matters. Leadership gives speeches about educational excellence. But daily reality tells different stories. Development opportunities exist on paper, but implementation varies tremendously across departments. Some mentors receive strong support, while others in the same institution feel forgotten. Recognition happens sporadically—sometimes visibly, sometimes not at all. You learn not to count on institutional validation." Material compensation met basic needs adequately but lagged behind eastern counterparts. Professional acknowledgment remained inconsistent, creating what participants described as "unpredictable visibility"—teaching contributions sometimes noticed, sometimes ignored, with unclear patterns. This inconsistency generated particular frustration because it suggested that recognition depended more on departmental personalities than institutional commitment. Administrative capacity constrained program sophistication, leaving many recognition initiatives partially implemented, as shown in **Table 3**.

Table 3. Dimensions of Educator Recognition Experiences Across Geographic Contexts.

Recognition Dimension	Eastern Region Experiences	Central Region Experiences	Western Region Experiences
Material Support	Reasonable compensation reducing financial stress; transparent performance systems	Adequate basic compensation but lagging behind; inconsistent bonus delivery	Significant salary gaps; irregular performance recognition; minimal welfare coverage
Professional Acknowledgment	Regular departmental recognition; annual teaching ceremonies; visible celebration of teaching	Sporadic acknowledgment varying by department; unpredictable visibility of contributions	Rare formal recognition; institutional invisibility of teaching work; professional isolation
Development Opportunities	Structured faculty development; national/international networks; research support	Variable access; policy-practice gaps; limited funding constraining implementation	Minimal training access; geographic isolation from teaching communities; scarce advancement pathways
Overall Teaching Culture	Education valued as scholarly work; strategic investment philosophy	Institutional ambivalence; teaching rhetorically valued but inconsistently supported	Structural undervaluation; resource constraints limiting recognition possibilities

Western region educators spoke with palpable frustration about feeling structurally undervalued. Economic constraints limited institutional capacity across all recognition dimensions. Dr. Ma's account conveyed widespread experience: "We do the same teaching work as colleagues in Beijing or Shanghai—long hours with residents, careful case discussions, thoughtful feedback on clinical performance. But we do it with far fewer resources and far less acknowledgment. Salaries lag significantly behind. Development opportunities barely exist—most of us have never attended national teaching conferences because funding isn't available. Recognition programs operate sporadically when budgets allow. You develop thick skin, but it affects morale. You wonder if your teaching contributions truly matter when institutions can't recognize them meaningfully." Welfare provisions covered only essential needs. Honorary recognition remained rare. Academic development support was minimal. Many participants described feeling professionally isolated, disconnected from broader teaching communities and innovations happening elsewhere [1].

These geographic patterns reflected not only resource distribution but also deeper questions about institutional priorities and cultural values around teaching. Eastern institutions have developed recognition infrastructures and organizational cultures treating education as a core mission. Western regions struggled with structural constraints that prevented even well-intentioned administrators from adequately supporting teaching faculty [2]. The resulting inequalities affected not just material conditions but educators' sense of professional dignity, pedagogical efficacy, and long-term career satisfaction. As one western region educator reflected: "We're not asking for luxury—we're asking for basic acknowledgment that our teaching work matters, that developing the next generation of physicians is a valuable institutional contribution deserving recognition and support."

3.1.3. Mentor Satisfaction Evaluation of Incentive Mechanisms

Educator assessments of recognition systems revealed complex emotional landscapes mixing appreciation, frustration, and longing for institutional understanding. Overall, participants expressed what might be characterized as "qualified satisfaction"—basic contentment with some recognition elements alongside profound dissatisfaction with others, particularly professional acknowledgment.

Material support generated most positive responses, though with important caveats. Educators appreciated compensation reliability as a foundation for teaching commitment. Dr. Sun articulated a common sentiment: "A dependable salary lets me focus on teaching without constant financial anxiety. That stability matters enormously—it's the difference between approaching residents' learning with full attention versus being mentally distracted by money worries. But financial security alone doesn't inspire teaching excellence. It's a necessary foundation, not sufficient motivation." Performance bonuses received favorable mention when delivered promptly and tied to meaningful teaching criteria. However, several participants noted frustrating delays and disconnect between evaluation metrics and actual teaching quality. Welfare provisions met basic expectations without generating enthusiasm [3].

Development opportunities occupied the middle ground in satisfaction assessments. Educators valued career growth pathways intensely, connecting current professional learning to long-term teaching effectiveness. Dr. Huang described the transformative impact: "That faculty development program fundamentally changed my teach-

ing approach. I learned evidence-based teaching methods, received feedback on my clinical instruction, and connected with educators facing similar challenges. Those experiences represent real institutional investment in my growth as a teacher. When institutions provide meaningful development, educators feel genuinely supported." Yet access inequality generated frustration. Senior educators in provincial hospitals praised available opportunities, while junior faculty in municipal settings described professional stagnation. Promotion pathways particularly troubled participants. Some praised emerging transparency in teaching-focused advancement, while others criticized opaque criteria seemingly favoring research over pedagogy [28].

Professional acknowledgment generated the lowest satisfaction and the strongest emotional responses. Participants expressed profound frustration with institutional invisibility despite sustained teaching dedication. Dr. Zhao's reflection captured widespread experience: "I've devoted twenty years to mentoring residents—countless hours of bedside teaching, thoughtful feedback on clinical performance, advocacy for learners facing challenges. My former residents practice across the country; some lead departments. But here, formal acknowledgment rarely comes. Recognition systems feel arbitrary, often missing the most dedicated educators. That invisibility creates quiet demoralization. You continue teaching because you care about learners, not because institutions validate your work." Honorary recognition proved particularly contentious—inconsistent selection criteria, infrequent implementation, and limited connection to actual teaching contributions. The gap between effort expended and acknowledgment received left many educators feeling professionally diminished [29,30].

Career stage influenced satisfaction patterns markedly. Junior educators at the associate physician level reported the lowest satisfaction, describing feeling overlooked in resource distribution and professional recognition. Dr. Jiang, early in his teaching career, explained: "Senior colleagues receive most development opportunities, recognition, and institutional attention. We junior faculty do substantial teaching work but feel invisible. That early-career neglect affects long-term commitment." Senior educators expressed higher satisfaction, having accumulated advantages over time. Renowned teaching faculty showed the greatest contentment but remained critical of system-wide inadequacies affecting junior colleagues [31].

Implementation challenges emerged prominently. Many participants noted frustrating delays in recognition delivery—performance acknowledgment arriving months late, developmental opportunities announced but never materialized. Personalization remained inadequate. Most viewed recognition as overly uniform, failing to address individual career stages, teaching contexts, or pedagogical strengths. Dr. Wu articulated desire: "We need differentiated recognition responsive to who we are as individual teachers—our career phases, our specific contributions, our development needs. One-size-fits-all approaches miss the mark." Organizational climate mattered substantially. Educators in hospitals with positive teaching cultures and supportive leadership described markedly different experiences than those in environments treating education as a peripheral activity [32].

These satisfaction narratives reveal recognition not as a simple policy satisfaction metric but as a complex affective experience intertwining material security, professional dignity, career growth, and institutional validation of teaching as worthy scholarly work. Educators sought not merely rewards but genuine acknowledgment that their pedagogical contributions matter fundamentally to institutional mission and societal good. The three-dimensional narrative of supervisor recognition experiences described above (material support, professional recognition, development opportunities) reveals how institutional practices shape teaching identity. However, recognition perception does not directly translate into teaching quality—our data show that the accessibility and utilization of educational resources serve as key mediating mechanisms. The following Section 3.2 will focus on this "bridging" process: how supervisors translate recognition experiences into specific teaching behaviors through resource relationships, and how different forms of recognition differentially affect resource mobilization capacity. This analysis avoids repeating previous content and instead explores the dynamic transmission pathway of recognition-resources-teaching, providing mechanistic insights for understanding the educational effects of institutional support [33].

3.2. How Institutional Support Shapes Educational Resource Experiences

3.2.1. Educators' Encounters with Educational Resources

The availability and accessibility of educational resources emerged as pivotal in shaping teaching experiences and learning outcomes. Through conversations with educators and administrators, we came to understand how

institutional support structures either enable or constrain pedagogical possibilities. Their narratives revealed resource experiences not as abstract efficiency metrics but as deeply felt realities affecting daily teaching lives and learner development [34].

Educators described highly varied encounters with resource accessibility across hospital settings. Some experienced adequate support, enabling focused attention on learner development. Others confronted persistent resource scarcity that consumed energy and creativity. Dr. Chen captured this contrast vividly: "When I have the resources I need—adequate mentors to share teaching load, functioning simulation equipment, time protected for teaching—I can focus entirely on my residents' learning. When I don't, half my energy goes to improvising workarounds, borrowing from colleagues, and making do with inadequate tools. That constant adaptation exhausts you and diminishes what you can offer learners."

Educator availability and teaching team strength emerged as the most positively experienced resource dimension. Participants attributed this relative success to deliberate institutional investment in building teaching capacity over recent years. Dr. Wang from a provincial hospital explained: "Our institution finally recognized that quality education requires sufficient educators with protected teaching time. They've hired dedicated teaching faculty, reduced clinical loads for those supervising residents, and brought in specialists with pedagogical expertise. That investment transformed our teaching environment." Most sites demonstrated reasonable educator-to-resident ratios, though participants noted ongoing challenges matching teaching expertise to specific learning needs. Administrative and technical support personnel generally met basic teaching requirements, though coordination across departments sometimes faltered [35].

Pedagogical infrastructure and teaching spaces presented more mixed experiences. Traditional resources—physical teaching spaces, basic clinical equipment, simulation laboratories—performed reasonably well at most sites, meeting fundamental educational needs without inspiring excitement. However, the technological infrastructure for contemporary medical education lagged substantially behind. Digital teaching resources, online learning platforms, electronic portfolio systems, and telemedicine teaching tools remained scarce or outdated. Dr. Liu expressed widespread frustration: "We're preparing physicians for twenty-first century practice using twentieth century educational tools. The digital infrastructure simply isn't there. Students arriving from medical schools expect integrated technology in their learning—multimedia cases, virtual patients, digital feedback systems. We can't provide it. That technological gap creates real pedagogical limitations." This disconnection between contemporary educational approaches and available technological resources troubled many participants.

Scholarly support structures—research platforms, academic networks, and funding for educational scholarship—showed the weakest development among all resource dimensions. Geographic disparities proved most pronounced here. Eastern region educators described reasonable access to educational research opportunities and collaborative networks. Dr. Zhou reflected: "I can pursue teaching scholarships, present at education conferences, and collaborate with educators nationally. Those opportunities enrich my teaching enormously." Central region participants reported moderate constraints limiting scholarly engagement. Western region educators faced substantial barriers. Dr. Ma's account conveyed a common experience: "Research resources for teaching scholarship are essentially unavailable to most of us. We focus exclusively on direct clinical instruction because that's all we can realistically do given resource constraints. But that limitation prevents us from contributing to educational knowledge, from developing innovative teaching approaches systematically, from growing as scholarly educators."

Institutional context shaped resource experiences profoundly. Hospitals with sophisticated information systems demonstrated better coordination across resource categories. Government funding support enabled notable improvements in pedagogical infrastructure. The institutional development stage also mattered. Rapidly expanding hospitals experienced resource strain from fluctuating learner numbers and evolving needs. Established institutions with stable programs managed resources more predictably, though participants noted that stability sometimes bred complacency about innovation.

These narratives illuminate educational resources not as neutral inputs but as material conditions fundamentally shaping what kinds of teaching become possible, what pedagogical relationships educators can cultivate, and what learning experiences residents encounter. Resource adequacy affects not only practical teaching logistics but also educators' sense of professional efficacy and their capacity to realize their pedagogical aspirations.

3.2.2. The Pathways Connecting Recognition, Resources, and Teaching

Educator accounts revealed intricate pathways through which institutional recognition practices influenced resource accessibility and utilization, which in turn shaped teaching quality and learner experiences. These connections operated not as simple causal chains but as dynamic processes involving human agency, institutional structures, and relational dynamics.

Material support profoundly influenced educator stability and resource engagement. Participants consistently linked adequate compensation to their capacity for sustained, focused teaching work. Dr. Sun explained the psychological dimension: "Reasonable salary does more than pay bills. It signals institutional valuation of teaching work. That affirmation allows me to invest fully without resentment, to approach teaching as a worthy professional calling rather than an obligation competing with better-compensated clinical work. And practically, financial security frees mental energy—I'm not constantly calculating supplementary income opportunities, so I can devote attention to learning our teaching resources thoroughly, experimenting with new approaches, and engaging deeply with residents' developmental needs." Adequate compensation reduced faculty turnover, preserving accumulated teaching wisdom and institutional relationships. It attracted talented educators who brought pedagogical creativity and resource-utilization expertise. Several administrators noted that well-supported educators invested significantly more time mastering available teaching technologies and collaborating around resource sharing.

Professional development opportunities shaped how educators understood and deployed pedagogical resources. Training experiences directly enhanced teaching capabilities, but participants emphasized subtler effects on resource consciousness and innovation. Dr. Huang described transformative learning: "That faculty development workshop fundamentally changed my relationship with teaching resources. I learned active learning strategies requiring minimal equipment, simulation techniques maximizing our limited technology, and assessment approaches using everyday clinical encounters. Professional development didn't just teach me methods—it taught me to see ordinary resources as pedagogical opportunities rather than constraints. I returned viewing our hospital environment through new eyes, discovering teaching possibilities everywhere." Academic support strengthened scholarly resource access, particularly. Educators with conference exposure and collaborative networks described accessing teaching innovations, research partnerships, and external resources extending far beyond their home institutions. These expanded horizons enriched local teaching even when physical resources remained limited.

Professional acknowledgment influenced resource dynamics through its effects on collaborative culture and collective engagement. While recognition affected individual educators' motivation directly, participants emphasized its powerful impact on workplace atmosphere and resource-sharing practices. Dr. Zhao articulated the interpersonal dimension: "When people feel genuinely valued—when teaching contributions receive authentic institutional recognition—something shifts in how we relate to each other and our shared resources. Valued educators communicate more openly, coordinate teaching schedules generously, share equipment readily, and help each other troubleshoot pedagogical challenges. Recognition creates a collaborative spirit that multiplies our collective resources far beyond what any individual possesses. Conversely, when educators feel undervalued, we become protective, isolated, and less willing to invest in communal resource management. Recognition shapes the social infrastructure, making physical resources actually useful for education."

Different resource categories responded distinctively to various recognition forms. Educator stability and teaching team strength benefited primarily from material support that attracted and retained talented faculty. Pedagogical infrastructure utilization responded strongly to professional development that enhanced educators' capabilities and creative resource deployment. Scholarly engagement showed the greatest response to development opportunities, expanding networks, and collaborative access. Yet these pathways were interconnected rather than operating independently. Dr. Li reflected: "You can't really separate these influences. Material security creates a foundation for engagement. Development opportunities build capability. Recognition fosters a collaborative culture. Together they shape whether resources become truly educational—whether they serve learning rather than just existing in institutional inventories."

Institutional context moderated these dynamics substantially. Large hospitals with robust infrastructure translated recognition into resource improvements more effectively than smaller institutions. Eastern regions with sophisticated management cultures and baseline resource adequacy showed stronger connections between recognition and resource utilization. Western regions faced structural constraints limiting even well-designed recogni-

tion's impact. One administrator observed candidly: "Incentives work beautifully when you have resources to optimize and infrastructure enabling translation of motivation into educational improvement. In severely resource-constrained settings, even excellent recognition sometimes hits ceilings—you can value and support educators wonderfully, but if fundamental resources simply don't exist, good intentions can't create something from nothing. That's the harsh reality we navigate."

3.2.3. Understanding Resources as Bridges between Recognition and Learning

Thematic analysis revealed educational resource accessibility and utilization as crucial mediating processes connecting institutional recognition practices to ultimate learning outcomes. Rather than recognition directly producing educational quality, it operated primarily through its effects on resource conditions and educators' capacity to deploy those resources pedagogically. This pathway emerged consistently across diverse participants and settings.

Educators described recognition as influencing learning indirectly through resource channels rather than directly through simple motivation. Dr. Wang summarized the dynamic: "Better institutional support attracts and retains talented educators who then secure resources more effectively and use them more creatively. Rarely is there a straight line from recognition to learner outcomes. Resources and resource utilization sit in between, translating recognition into actual educational experiences that residents encounter. The connection is real but operates through intermediary processes."

Material support showed particularly strong mediating pathways in participant narratives. Adequate compensation enabled resource optimization through multiple interconnected mechanisms. It attracted pedagogically talented faculty who brought expertise in creative resource deployment. It reduced turnover, preserving institutional memory about available resources and established teaching relationships. It freed educators from financial preoccupation, creating mental space for pedagogical innovation and resource mastery. Dr. Chen reflected: "When I stopped worrying constantly about money, I finally had cognitive bandwidth to learn our simulation equipment properly, to experiment with case-based teaching approaches, to develop systematic resident feedback practices. Financial security didn't directly improve my teaching—it enabled me to engage resources and learners differently. That engagement pathway made the real difference for resident learning."

Professional development demonstrated robust mediation as well. Training enhanced educators' capabilities, which translated into more effective resource utilization and ultimately richer learner experiences. Dr. Liu explained: "Faculty development transformed my entire approach to clinical teaching. I learned teaching strategies accomplishing more with the same physical resources—turning routine clinical encounters into powerful learning opportunities, using simple questioning techniques to foster clinical reasoning, and creating peer-learning structures that multiplied teaching impact. Better pedagogical skills let me utilize limited resources far more educationally. That capability pathway connected my professional growth to residents' learning outcomes."

Professional acknowledgment showed more complex mediation patterns. Recognition influenced teaching quality partly through direct motivation—valued educators simply tried harder and cared more deeply. But it also operated through resource channels by fostering collaborative cultures that improved collective resource management. Dr. Zhao articulated both pathways: "Feeling genuinely valued makes me want to teach excellently, period—that's direct motivation regardless of resources,as shown in **Figure 1**. But recognition also makes me more willing to share teaching materials generously, coordinate with colleagues on resident rotations, and contribute time to communal teaching infrastructure. Those collaborative behaviors improve our collective resource base, which ultimately benefits learner experiences. So recognition works both directly through my individual motivation and indirectly through our shared resource environment."

Institutional context shaped mediation strength substantially. Large hospitals with abundant resources showed stronger mediating effects—recognition translated readily into improved resource conditions and utilization. Smaller institutions with severe resource constraints showed weaker mediation. Recognition sometimes encountered structural ceilings where motivation couldn't overcome fundamental resource absence. One administrator reflected: "We can value our educators perfectly, provide all the professional acknowledgment humanly possible, but if essential teaching resources simply don't exist—if we lack simulation equipment, digital platforms, protected teaching time—that recognition can't fully translate into dramatically improved learner experiences. The mediating pathway requires actual resources to mediate through. That's the structural reality limiting what recognition alone can accomplish."

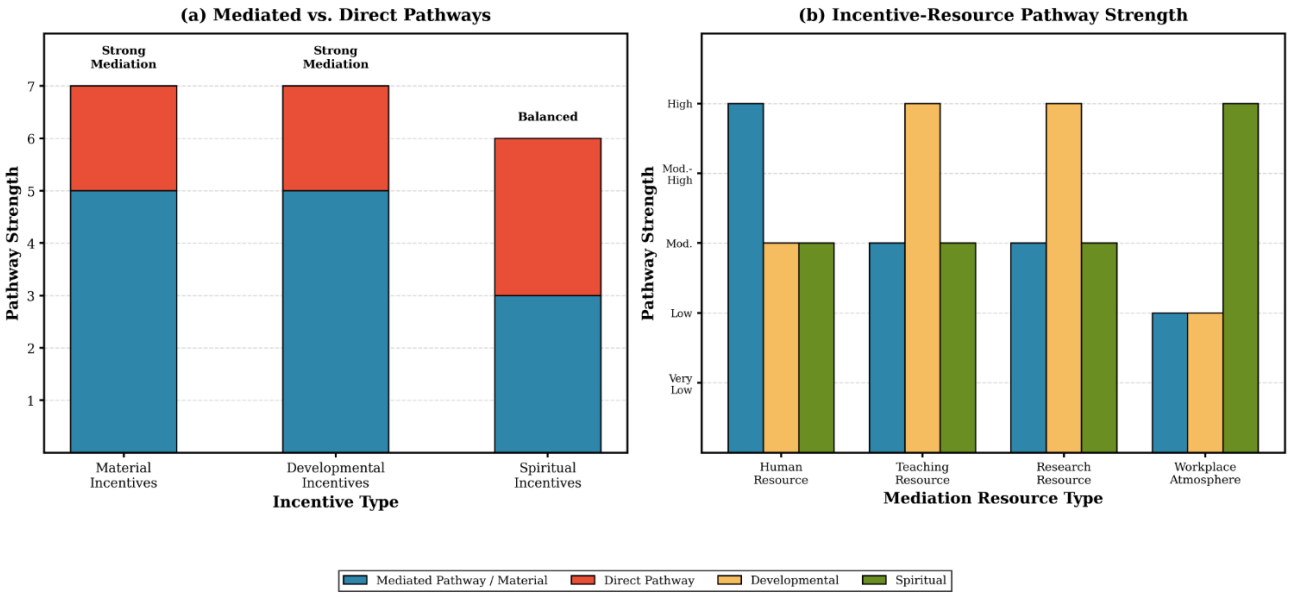

Figure 1. Pathways Connecting Recognition, Resources, and Learning Experiences.

These findings reveal learning outcomes as products of complex processes connecting institutional recognition practices, educator experiences, resource conditions, and pedagogical interactions. Understanding these mediating pathways illuminates both the power and limitations of recognition systems—they profoundly matter for educational quality, but operate through specific mechanisms requiring adequate resource infrastructure to function fully. Improving residency education demands attention to recognition practices and resource conditions simultaneously, recognizing their interdependence in shaping learning environments.

3.3. Residents' Learning Journeys: Experiences of Professional Becoming

The Texture of Learning in Residency: Multiple Dimensions of Growth

Conversations with residents and their mentors illuminated learning as a multidimensional journey encompassing cognitive mastery, clinical reasoning cultivation, and professional identity formation. Each dimension carried distinct experiential qualities and developmental challenges. Rather than abstract quality metrics, participants described learning as a lived process of gradual transformation from novice to competent physician.

Overall, residents expressed cautious satisfaction with their educational experiences. Most reported that training fundamentally met their developmental expectations, though significant variations emerged across learning dimensions. Their narratives revealed uneven growth patterns reflecting both programmatic strengths and persistent pedagogical gaps that troubled both learners and educators.

Knowledge and skill acquisition emerged as the most confidently experienced dimension of professional development. Residents described building solid foundations in medical knowledge and technical competencies through structured learning experiences. Theoretical understanding received the most enthusiastic assessments. One resident from an eastern provincial program explained: "The systematic curricula provide excellent grounding in clinical fundamentals—pathophysiology, pharmacology, diagnostic reasoning frameworks. I feel genuinely confident in my foundational medical knowledge. That intellectual security allows me to approach complex cases without constantly doubting basic principles." Clinical procedural skills also garnered positive responses. Residents appreciated deliberate skill-building opportunities through supervised practice. Technical competency development met reasonable expectations across most sites. Mentors corroborated these assessments, describing current residents as generally well-prepared in foundational capabilities. However, this relatively successful skill development is directly linked to supervisors' time availability and teaching commitment—this is precisely the core point where incentive mechanisms operate. Supervisors who receive adequate material support and recognition are able to invest more protected time in bedside teaching. As one resident from the Eastern region described: "My supervisor

has fixed teaching sessions every week because the hospital recognizes her teaching workload and reduces some of her outpatient pressure. This allows her to patiently guide me through complex procedures, rather than just signing off." In contrast, residents from less-developed Western regions reported: "Supervisors have excessive clinical duties, and often prioritize revenue-generating projects due to lack of teaching subsidies. Our skills training can only be completed in whatever gaps we can find." Insufficient incentives directly translate into supervisors' time scarcity, ultimately weakening trainees' hands-on opportunities and feedback quality. Dr. Wang observed: "Today's residents arrive with stronger theoretical preparation than previous generations. Our challenge isn't building basic knowledge—it's helping them apply that knowledge to messy clinical reality."

Clinical reasoning development presented more complex and uneven learning experiences. Residents described this dimension as both intellectually exciting and persistently challenging. Systematic case analysis abilities received relatively positive feedback. Most felt capable of gathering clinical information methodically and generating differential diagnoses. Yet treatment planning showed considerable variability in confidence and preparation. Some residents reported receiving excellent mentorship in clinical decision-making. Others described feeling underprepared for the ambiguity and complexity of real-world therapeutic choices. One resident from a central region hospital captured common struggles: "I can follow established protocols competently, but autonomous decision-making still feels deeply uncertain. I want more opportunities to think through challenging cases independently with graduated guidance rather than simply watching experts decide or blindly following algorithms. That middle space—guided autonomy—remains underdeveloped in my training." Evidence-based practice integration lagged particularly noticeably. Multiple participants identified substantial developmental needs here. Residents expressed difficulty translating research evidence into individualized patient care amidst clinical uncertainty. One stated candidly: "We're taught evidence-based principles abstractly, but applying them practically—finding relevant research during busy clinical work, critically appraising study quality, adapting population-level findings to individual patients—those skills remain weak. I need much more practice doing evidence-based reasoning in real time with mentors modeling the process." The weakness in clinical reasoning ability is rooted in supervisors' lack of pedagogical training and academic support incentives. Supervisors who receive professional development opportunities are able to integrate evidence-based thinking into daily teaching. One resident from the Central region compared: "When rotating in Department A, my supervisor had just attended a clinical teaching workshop. She would use Socratic questioning to guide me in analyzing cases and encouraged me to question treatment plans. However, the supervisor in Department B never received teaching training and only had me memorize guideline provisions." More seriously, supervisors lacking academic incentives find it difficult to demonstrate evidence retrieval and critical appraisal, as one supervisor from the Western region candidly stated: "The hospital doesn't recognize teaching papers, and I have no time to follow the latest research. How can I teach students to make evidence-based decisions?" This reveals how the absence of development opportunities undermines supervisors' methodological capabilities, thereby constraining the cultivation of trainees' higher-order thinking.

Professional identity and relational competence development showed moderate and highly variable experiences across programs. Communication capabilities received reasonably positive assessments overall. Most residents felt adequately prepared for basic doctor-patient interactions through observation and practice. One noted: "Learning to explain diagnoses clearly, discuss treatment options, and address patient concerns—these skills developed gradually through watching skilled mentors and receiving feedback on my own interactions. I feel reasonably confident here, though complex conversations about end-of-life care or medical errors still challenge me." Collaborative practice attitudes showed striking variation across training sites. Some programs explicitly cultivated teamwork through interprofessional activities and collaborative learning structures. Residents from these environments described deep appreciation for collegial practice models. Others experienced minimal intentional team-building, leaving collaborative capabilities to develop haphazardly through informal socialization. Professional ethics formation required sustained attention throughout training, participants emphasized. Ethical reasoning emerged slowly through accumulated experiences confronting moral complexity rather than through discrete teaching moments. Dr. Liu reflected: "Ethics develops through lived encounters with difficult situations—conflicts between patient wishes and medical recommendations, resource allocation dilemmas, navigating family disagreements, managing uncertainty honestly. We provide some formal ethics teaching, but real professional integrity forms through grappling with these challenges repeatedly over the years, with mentors helping residents reflect on their experiences and values." The quality of professional identity formation is highly dependent on whether supervisors themselves

experience a sense of professional dignity and psychological safety, which is directly influenced by professional recognition mechanisms. Supervisors who feel valued by the institution are more willing to engage in deep emotional labor. One resident from the Eastern region described: "After my supervisor received the annual teaching award in the department, she became noticeably more willing to share her career setbacks and growth. Those authentic stories helped me understand the complexity of the medical profession." In contrast, supervisors who have long lacked recognition often exhibit burnout and detachment. One trainee from the Central region observed: "After my supervisor complained that 'teaching doesn't count toward performance,' teacher-student interactions became mechanized. I rarely get to discuss professional values with him." The deprofessionalization of supervisors resulting from a lack of recognition directly impedes identity transmission through role modeling—this is a tacit but critical pathway through which incentive mechanisms affect learning outcomes.

Critical factors shaping learning experiences emerged consistently throughout participant narratives. Mentor guidance quality stood out as profoundly influential across all developmental dimensions. Residents paired with dedicated, pedagogically skilled, emotionally present mentors described substantially richer learning experiences than those receiving perfunctory supervision. One resident contrasted experiences: "My first rotation mentor barely acknowledged my existence—signed off procedures but never truly taught. My second mentor transformed my learning entirely. She explained her reasoning process aloud, asked probing questions about my thinking, gave specific constructive feedback, and created a safe space for admitting uncertainty. That relationship fundamentally shaped my clinical development." Clinical practice opportunities strongly influenced reasoning capabilities, particularly. Residents with abundant hands-on experiences and graded autonomy showed greater confidence in independent thinking than those primarily observing. The learning environment climate shaped professional identity formation, especially. Institutional cultures valuing education, modeling ethical practice, supporting learner wellbeing, and fostering psychological safety enabled deeper professional becoming. Participants consistently emphasized these elements' profound interconnection—quality mentorship, meaningful practice opportunities, and supportive environments together creating conditions where transformative learning becomes possible. When any element faltered, development suffered accordingly. These learning experiences reveal residency training not as standardized competency checklist completion but as a profoundly relational and contextual process of professional formation requiring sustained pedagogical attention, authentic clinical engagement, and humanizing educational cultures that honor both intellectual growth and identity development throughout physicians' formative years.

4. Discussion

4.1. Understanding Recognition, Teaching Identity, and Learning Environments through Educational Theory

This study illuminates how institutional recognition practices shape clinical educators' professional identities, pedagogical engagement, and the learning environments they create for residents. Our findings extend several educational theoretical frameworks while generating new insights about teaching and learning in professional formation contexts.

The relationship between institutional recognition and educational outcomes proved far more complex than linear causal models suggest. Recognition operated not through simple direct motivation but primarily through its profound effects on educator identity, resource relationships, and pedagogical cultures. This pathway dominated participant narratives and carries significant theoretical implications. The findings resonate deeply with teacher identity theory, which conceptualizes teaching as fundamentally identity work—educators' sense of who they are as teachers profoundly shapes how they teach and what learning environments they cultivate (Beauchamp and Thomas, 2009). Our participants consistently described recognition as validating or undermining their teaching identities. Dr. Liu's poignant reflection—"formal acknowledgment rarely comes...that invisibility weighs on you over time"—reveals recognition not merely as reward but as affirmation of professional selfhood. When institutions genuinely acknowledge educational contributions, they validate teaching as a worthy scholarly identity rather than a peripheral clinical obligation. This validation enables educators to embrace teaching roles fully, invest emotional energy authentically, and cultivate pedagogical relationships with residents grounded in secure professional identity rather than resentment or ambivalence.

Self-determination theory provides an additional interpretive lens for understanding these dynamics [3]. This

framework distinguishes intrinsic motivation—driven by inherent interest, meaning, and growth—from extrinsic motivation rooted in external rewards or pressures. Our findings suggest that different recognition forms connect differentially to these motivational sources. Material support primarily addresses extrinsic concerns, providing foundational security that prevents demotivation but rarely inspires passionate teaching. Dr. Sun articulated this precisely: "Financial security frees mental energy...but doesn't inspire teaching excellence. It's a necessary foundation, not sufficient motivation." Conversely, professional acknowledgment and development opportunities nurture intrinsic motivation by satisfying fundamental psychological needs for competence, autonomy, and relatedness. When institutions honor teaching achievements publicly, provide pedagogical development supporting educator growth, and create collaborative cultures where teaching contributions matter communally, they foster conditions for intrinsic motivation to flourish. Participants like Dr. Huang described these experiences as "transformative"—recognition enabling them to experience teaching as a meaningful professional calling rather than an imposed duty. This theoretical interpretation challenges purely economic approaches to educator motivation, revealing the centrality of identity validation and intrinsic purpose in sustaining teaching excellence.

Situated learning theory and communities of practice frameworks [2] illuminate how resource accessibility shapes learning environments and resident development. This perspective conceptualizes learning not as individual knowledge acquisition but as participation in authentic practice communities where novices gradually develop expertise through legitimate peripheral participation alongside experienced practitioners. Our findings reveal educational resources as material conditions enabling or constraining such participation. When educators access adequate teaching infrastructure, pedagogical technologies, and scholarly support—and when recognition practices foster collaborative rather than competitive teaching cultures—they create learning environments where residents can engage authentically in clinical practice communities. Dr. Chen's description of protected teaching time and functioning simulation equipment enabling "focused attention on residents' learning" exemplifies how resources materialize pedagogical possibilities. Conversely, resource scarcity forces what participants called "constant improvisation," which fragments teaching attention and limits the depth of mentor-learner engagement possible. Western region educators' accounts of professional isolation reveal how inadequate resources and recognition together constrain the rich communities of practice essential for resident formation. These insights extend situated learning theory by demonstrating how institutional recognition and resource policies fundamentally shape whether clinical settings function as generative learning communities or merely training sites where residents accumulate procedural experiences without deep professional enculturation.

The multi-pathway mechanisms we identified—material support stabilizing educator presence, development opportunities enhancing pedagogical capabilities, professional acknowledgment fostering collaborative teaching cultures—reflect what Shulman (1987) termed pedagogical reasoning and action. Effective teaching requires not only content knowledge but sophisticated pedagogical content knowledge, understanding of learners, and the capacity to create productive learning environments. Recognition practices influence these teaching capacities through distinct channels. Professional development directly enhances pedagogical knowledge and teaching strategies. Material security provides temporal and psychological space for pedagogical reflection and innovation. Collegial recognition creates collaborative cultures where educators share teaching wisdom and collectively improve practice. No single recognition form suffices alone—comprehensive support across multiple dimensions enables the complex pedagogical work of resident education. This finding challenges simplistic incentive models while validating more nuanced educational perspectives on teacher development and instructional improvement.

4.2. Implications for Educational Practice and Institutional Development

These findings generate several important implications for strengthening clinical teaching and residency education, moving beyond policy prescriptions toward rethinking pedagogical relationships, institutional cultures, and educational leadership.

First, institutions must reconceptualize educator recognition as identity work rather than merely performance management. This shift requires moving from transactional reward systems toward relational recognition practices that validate teaching as a legitimate scholarly identity. Practically, this means creating visible institutional narratives celebrating teaching excellence—not just annual ceremonies but ongoing departmental acknowledgment, teaching portfolios valued in promotion decisions, educational scholarship recognized alongside clinical research, and leadership genuinely articulating teaching as a core institutional mission rather than a peripheral service. Dr.

Zhao's frustration with "arbitrary recognition systems" suggests current approaches often feel performative rather than authentic. Meaningful recognition requires sustained institutional attention to who educators are becoming as teachers, not merely what measurable outputs they produce. This identity-centered approach demands that educational administrators develop deeper pedagogical understanding, spend time in teaching spaces observing educator-learner interactions, engage educators in genuine dialogue about their teaching experiences and developmental needs, and demonstrate through resource allocation that teaching identity is professionally valued. Such cultural transformation cannot happen through policy alone—it requires leadership modeling, persistent cultural cultivation, and willingness to challenge institutional habits prioritizing clinical productivity over educational mission.

Second, professional development must be reconceived as pedagogical community-building rather than isolated skill acquisition. Our findings suggest that development opportunities matter not only for individual capability enhancement but crucially for connecting educators to broader teaching communities where pedagogical knowledge circulates, innovations emerge collectively, and teaching identity finds affirmation among peers. Dr. Wang's description of faculty development as creating "energized" connections with educators "facing similar challenges" reveals community formation as a central developmental outcome. Institutions should therefore prioritize development models emphasizing collaborative learning—teaching circles where educators examine practice together, peer observation and feedback partnerships, action research collaboratives investigating shared pedagogical questions, and interprofessional teaching teams co-designing learning experiences. These approaches build what Wenger (1998) called communities of practice, where teaching knowledge develops through collective engagement rather than expert-to-novice transmission. Regional disparities documented in our study suggest a particular need for supporting teaching communities in resource-constrained settings through virtual networks, inter-institutional partnerships, and mobile faculty development, bringing pedagogical scholarship to geographically isolated educators.

Third, the educational resource strategy requires shifting from efficiency thinking toward learning environment design. Rather than viewing resources as inputs requiring optimal allocation, institutions should ask how material conditions shape pedagogical possibilities and learning cultures. This perspective foregrounds questions like: Do our teaching spaces enable the kinds of mentor-learner interactions we envision? Does our technological infrastructure support the reflective practice and collaborative learning essential for resident development? Do our staffing patterns provide educators with the temporal and psychological space for genuine pedagogical presence? Dr. Liu's frustration about "twentieth-century tools" for "twenty-first century practice" reveals resource decisions as fundamentally pedagogical choices shaping what kinds of teaching and learning become possible. Resource planning should therefore involve educators substantively—not merely administrators determining allocations, but teaching communities articulating their pedagogical visions and collaboratively designing material conditions enabling those visions. This participatory approach honors educators' practical wisdom while fostering ownership of educational environments.

4.3. Research Limitations

This study has several limitations that require careful consideration. First, the context-specificity of the qualitative design limits the statistical generalizability of the findings—while the in-depth narratives of 42 participants reveal rich meaning structures, they cannot represent universal experiences across all regions or hospital types in China. In particular, the absence of voices from grassroots community hospitals and specialty hospitals may have overlooked important perspectives. Second, the sample is concentrated in the public tertiary hospital system and does not cover differentiated incentive practices that may exist in private medical institutions or Sino-foreign cooperative education programs. Third, the researcher's dual positioning creates interpretive tension: while my medical education background facilitated trust-building and identification of implicit meanings, my "insider" status may have inadvertently reinforced certain professional assumptions, although this risk was mitigated through member checking and reflective journaling. Fourth, the cross-sectional design cannot track the long-term effects of incentive mechanism reforms or supervisors' career development trajectories. Finally, self-reported data rely on participants' memory and interpretation and may be subject to social desirability bias—although anonymity protection and open-ended interviews reduced such risks. These limitations suggest that future research needs to include a broader range of institution types, employ longitudinal tracking designs, and combine observational

methods to verify the authenticity of self-reported experiences.

5. Conclusions

This qualitative study explores how institutional recognition practices shape clinical educators' professional identities and pedagogical engagement, ultimately influencing residents' learning experiences and professional formation within China's residency training contexts, yielding five interconnected educational insights.

(1) Educators experience institutional recognition as fragmented and identity-threatening rather than affirming. Material support dominates institutional approaches, providing foundational security but rarely validating teaching as worthy scholarly work. Professional acknowledgment—the dimension educators most deeply desire—remains scarce and inconsistent, leaving many feelings professionally invisible despite years of dedicated teaching. Development opportunities exist unevenly, with eastern regions offering robust pedagogical communities while central and western educators experience professional isolation. These patterns reveal recognition not as a neutral policy mechanism but as a profoundly consequential practice either nurturing or undermining educators' teaching identities and sense of professional worth.

(2) Educational resource accessibility and utilization emerged as crucial mediating processes connecting institutional recognition to learning outcomes. Recognition shapes teaching quality primarily through its effects on educator stability, pedagogical capability development, and collaborative teaching cultures—which in turn influence how effectively educators deploy available resources to create rich learning environments. This pathway illuminates teaching excellence as requiring both motivated educators and adequate material conditions supporting their pedagogical work. Recognition alone cannot produce quality learning when fundamental teaching infrastructure is absent; conversely, abundant resources remain pedagogically inert without educators whose professional identities and capabilities enable creative educational deployment.

(3) Different recognition dimensions operate through distinct yet interconnected pathways in shaping educational experiences. Material security enables sustained educator presence and attention, reducing turnover that fragments mentor-learner relationships and preserves accumulated teaching wisdom within institutions. Professional development enhances pedagogical knowledge and teaching strategies, transforming how educators understand learners, design learning experiences, and foster clinical reasoning. Collegial acknowledgment cultivates collaborative teaching cultures where educators share innovations, support one another's growth, and collectively construct learning environments exceeding what isolated individuals could create. These complementary pathways suggest that comprehensive recognition approaches honoring teaching identity's multiple dimensions prove essential for sustaining educational excellence.

(4) Resident learning journeys demonstrate profound variation across developmental dimensions reflecting both individual mentor relationships and broader institutional educational cultures. Technical knowledge and procedural skills develop relatively successfully through structured curricula and supervised practice. However, higher-order capabilities—autonomous clinical reasoning, evidence-based practice integration, ethical judgment, professional identity formation—require deeper pedagogical attention than many programs currently provide. These dimensions develop through sustained mentor-learner relationships characterized by reflective dialogue, graduated autonomy, modeling of professional thinking, and psychological safety, enabling learners to grapple authentically with clinical complexity and uncertainty. Mentor pedagogical presence emerged as the most influential factor shaping learning quality across all dimensions, underscoring teaching relationships' centrality to professional formation.

(5) Strengthening residency education demands reconceptualizing institutional approaches from performance management toward identity-honoring recognition, from isolated skill development toward pedagogical community building, from resource efficiency thinking toward learning environment design, and from top-down policy implementation toward genuine partnership with educator and learner communities. These shifts require cultural transformation, recognizing teaching as core scholarly work deserving sustained institutional investment, visible leadership commitment, and authentic validation of educators' professional contributions. Geographic inequalities demand not merely resource redistribution but capacity building and cultural development, enabling all regions to cultivate educational excellence. This study contributes to qualitative research in professional education by illuminating recognition's identity-shaping power, revealing the

relational and contextual nature of teaching quality, demonstrating how institutional cultures profoundly shape learning possibilities, and amplifying educator and learner voices as essential knowledge sources for educational improvement.

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Institutional Review Board Statement

This study was approved by the Medical Ethics Committee of Capital Medical University (Ethics Approval No.: 2024-MED-IRB-056).

Informed Consent Statement

All participants signed and provided informed consent.

Data Availability Statement

The authors confirm that the data supporting the findings of this study, including all raw numerical values used to generate figures and tables, are available within the article.

Conflicts of Interest

This study does not involve any conflicts of interest.

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