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Interdisciplinary Situational Teaching for Postgraduate Connotative Development: An Integrated Perspective of Scaffolding Theory and Symbolic Interactionism

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ABSTRACT: *As China's higher education shifts toward connotative development, graduate education must prioritize quality enhancement and structural optimization. This study examines how interdisciplinary courses promote connotative development by integrating scaffolding theory and symbolic interaction theory, investigating their impact on cognitive growth and social interaction. Through semi-structured interviews with seven graduate students from Chinese-foreign cooperative programs, the research identifies key factors, such as teacher guidance, course design, and group collaboration, that shape*

learning methods, knowledge transfer, and critical thinking. Findings reveal that guided teaching, social issue discussions, and experiential learning in interdisciplinary settings promote independent exploration and multidisciplinary perspectives, offering an innovative model for reforming graduate education. The study provides theoretical insights and practical strategies to advance connotative development in China's higher education system.

Keywords: connotative development, interdisciplinary courses, scaffolding theory, symbolic interaction theory, educational quality

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INTRODUCTION

In the context of the new era, China's higher education faces the challenge of transformation, particularly in promoting quality development. After over 40 years of reform and opening up, China's higher education has entered a stage of comprehensive improvement. Both internal and external factors have driven this transition with pressures from international competition and industrial revolutions playing a particularly significant role. In this new era, graduate education should focus on quality and aim for the modernization of education. Policies released by the United Nations and the Chinese government in recent years, such as "China's Education Modernization 2035" and "Measures to Accelerate the Construction of an Innovative Nation," have also provided strong policy support for quality development. The standards for measuring education quality include not only explicit outcomes but also comprehensive assessments of the education process. Graduate education should be closely aligned with national strategic needs and socio-economic development, while also considering students' satisfaction with the learning process to motivate autonomous learning and research. However, the current educational model still mainly relies on one-way instruction, and students lack autonomy. Therefore, innovating educational models has become key to promoting quality development. This study explores how course design, especially interdisciplinary courses, can guide students to engage in heuristic thinking and autonomous practice to promote quality development.

The study combines scaffolding theory and symbolic interaction theory, using semi-structured interviews and thematic analysis to explore the impact of interdisciplinary courses on graduate education. The research questions include: 1) What factors influence students' learning outcomes from interdisciplinary course content? 2) How do interdisciplinary courses guide students to engage in heuristic thinking and autonomous practice? 3) How do interdisciplinary courses promote the quality development of graduate education?

By interviewing seven graduate students from Chinese-foreign cooperative universities who have taken interdisciplinary courses. This study examines the inspirational effects of course design on students' thinking and practical abilities. The core of quality development is optimizing the allocation of educational resources, improving teaching quality, and promoting the coordinated development of the education system. While there is much research on quality development in undergraduate education, there is relatively little research on graduate education, particularly concerning teaching formats and content. Many domestic and foreign scholars have focused on how quality development can enhance the quality of undergraduate education and cultivate top-tier educational institutions. In recent years, research has gradually expanded to graduate education, proposing innovative models for quality development.

Additionally, this study draws on the frameworks of intercultural competence, global citizenship and transformative learning theory. Interdisciplinary courses are not limited to knowledge delivery; they also cultivate students' global perspectives. By encouraging adaptability and critical thinking, these courses promote transformative learning. They are especially effective in enhancing students' intercultural communication skills, enabling them to engage confidently in an increasingly interconnected academic and professional world.

LITERATURE REVIEW

Connotative Education

The reform and opening-up policies have driven innovation in knowledge and institutional frameworks, reducing education costs and enabling large-scale expansion (Li & Liang, 2020). Wang & Liu (2011) highlighted that a significant reduction in institutional costs is a key factor in China's success. The connotative development of higher education is not limited to elite universities but relies on a diverse knowledge environment and strong innovation momentum (Arocena & Sutz, 2021;Rodriguez et al.,2024). Therefore, fostering connotation is essential for ensuring educational benefits for all. Connotative education has importance to students' full development and creative abilities(Justice et al., 2007;Xu et al., 2025). These goals include better academic results and the growth of personal traits, hands-on skills, and the ability to adapt in society. Chen et al. (2021) said that connotative education works to build students' inner abilities and shape how they think. It helps students grow in critical thinking, creativity, and social responsibility by offering well-rounded education.

This study looks at how programs run by Chinese and foreign schools together can help fix current problems. Practical courses let students take part in real work tasks. This helps them find out what they need to learn and get better at learning by themselves (Robinson & Persky, 2020). Spouse (2001) said that hands-on teaching is very helpful in building the job skills of graduate students. Similarly, Lester and Costley (2010) suggest that structured workplace activities facilitate learning processes. Lufler et al. (2020) found that practical teaching effectively addresses workplace challenges and provides meaningful opportunities for professional growth. Research by Costley and Abukari (2015) also indicates that practice-oriented education enhances employee efficiency and professional capabilities.

Situational Teaching

In China, Chinese-foreign cooperative education provides a new perspective for educational development (Sum & Jessop, 2013). Situational teaching, which combines practice with real-world settings, is gaining attention (Van der Merwe, 2008). This method comes from social learning theory and emphasizes learners' participation in real environments (Lave & Wenger, 1991). It enhances learning by using real or simulated situations (Naidu et al., 2007). Chinese-foreign cooperative education brings in high-quality international resources. This improves teaching standards and global connections (Jinhui & Mengjin, 2019; Qiu et al., 2024).

Situational teaching works well in graduate education(Jinhui, 2019). It links theory to real-world practice (Hursen & Fasli, 2017). Students gain practical skills and prepare for jobs. They also learn more actively and independently (Core et al., 2016). Working with industry professionals on real projects helps students apply knowledge and solve problems (Healey & Healey, 2017). This approach also supports cultural exchange and understanding (Taguchi & Tang, 2017).Furthermore, recent studies in second language acquisition have demonstrated that the enhancement of learning outcomes and language proficiency relies on integrating authentic context and cultural background into the curriculum, rather than solely relying on traditional instructional approaches (Garg, 2025).

Scaffolding Theory

Scaffolding theory was first explained by Wood, Bruner, and Ross (1976). It talks about the short-term help that teachers give to students (Stearns, 2009). . This help allows students to slowly understand and learn new skills. The idea comes from Vygotsky's Zone of Proximal Development (ZPD). ZPD means that students can do harder tasks with help from teachers or classmates (Van Der Stuyf, 2002). Scaffolding gives useful ways to teach, especially in higher education. In this setting, students need to think deeply and solve problems. Teachers can help by asking questions, showing examples, giving advice, or sharing tools. These methods help students think more and fix hard problems. This theory works well

with deep learning, especially in programs that mix Chinese and foreign education. In these programs, group talks and real examples help students deal with differences in culture, language, and learning habits. This also helps them become more effective at learning independently (Wilson & Devereux, 2014).

Scaffolding also focuses on feedback and looking back. When students check their own work or give comments to classmates, they learn to think better (Könings et al., 2019). This method also helps students work with others from different cultures. It teaches them how to understand and accept new ideas (Kermani & Brenner, 2000). Learning to work across cultures is very important for doing well in school and getting good jobs in the future (Kurteš, 2017).

Symbolic Interactionism

Symbolic interactionism provides a valuable framework for understanding student identity and social learning (Robinson, 2017; Miller, 1973; Shumack, 2009). It explains how people form self-awareness through social interactions. The "Me" responds to outside feedback, causing students to adjust their learning methods. At the same time, the "I" grows through interactions with teachers and classmates (Wieder, 2017).

This theory highlights how classroom discussions and group projects improve students' understanding of others and their cross-cultural communication skills (Charmaz et al., 2019). Through feedback, teachers help students develop self-awareness, encourage reflection, and deepen learning (Carter & Fuller, 2016). Cross-cultural adaptation is a dynamic and evolving process influenced by multiple factors, including prior cross-cultural exposure, cultural intelligence, and the duration of immersion in the host environment (Zhang & Ting, 2025). The application of situational teaching and scaffolding theory in Chinese-foreign cooperative education supports the goals of in-depth education. These methods enhance students' critical thinking, innovation, and cross-cultural communication skills.

Notably, Knight's (2004) concept of internationalization as the process of integrating an international, intercultural, and global dimension into the purpose, functions, and delivery of higher education provides a useful lens for analyzing cross-border cooperation and curricular innovation. Similarly, Deardorff's (2006) intercultural competence framework and Marginson's (2022) global mobility theory highlight the complex interplay between student agency, institutional structures, and transnational knowledge flows. These theoretical perspectives enrich the study's dual focus on scaffolding theory and symbolic interactionism by situating interdisciplinary situational teaching within broader conversations about global competence, ethical internationalization, and intercultural communication.

METHOD

Research Methods and Analytical Process

This study employs a phenomenological design, focusing on the personal perceptions and lived experiences of graduate students in interdisciplinary learning environments. This approach is suitable for exploring the meanings, reflections, and feelings participants associate with their learning processes. Semi-structured interviews with open-ended questions encouraged participants to express their perspectives in depth. Thematic analysis followed phenomenological principles, emphasizing the identification of common themes that reveal the core nature of students' academic and personal growth.

Research Design

This is a qualitative single-case study, focusing on a taught master's program from a branch campus of a Hong Kong university based in mainland China, delimited by the academic year 2023–2024, the program's curricular format, and seven students registered and taking the central interdisciplinary course(s). Interdisciplinary course work is examined under a case study method when it investigates a contemporary phenomenon within its real-world context and is fitting when demarcations between the phenomenon and context aren't self-evidently clear. Because our interest lies with understanding the work of designing interdisciplinary courses in context—with teaching setups, collaborative work of students and their assessment strategies—the single-case method provides a unifying analytic frame within which context-mechanism-outcome tracing is possible. We employed a phenomenological, experientially based analytic orientation to identify cross-participant themes of learning, autonomy, and intrinsic development from semi-structured interviews. This conjunction allows us to (a) preserve the integrity of the program context (case logic) while (b) carefully integrating the lived experiences of the participants (phenomenological logic), making possible analytic generalization to theory rather than statistical generalization.

This study was conducted within a taught interdisciplinary program offered by a Hong Kong university's branch campus in mainland China. The program utilizes an international curriculum and learning environment to develop students' global perspectives and intercultural adaptability. All participants were selected from students enrolled in interdisciplinary courses that specifically emphasize independent thinking and cross-cultural competence. Faculty were selected based on international mobility experience and engagement in program teaching. This study is grounded in a phenomenological methodology, using semi structure-depth interviews to capture the richness of participants' personal experiences. This helped show different kinds of experiences. The study focused on one-year master's students who had taken interdisciplinary courses, such as "Film and Law." The sample had students from different fields, like communication, law, computer science, sociology, economics, and arts management. The interviews were guided

by three main questions: what factors affected learning results, how the course helped students think and act on their own, and how the course helped their inner growth.

Data Collection and Analysis Steps

Each interview lasted at least 60 minutes. The questions focused on each student's personal learning experience. The data were recorded using audio and written notes. This helped keep the information complete and correct. The analysis started with open coding. The recordings were written out word for word. Important ideas were picked out. Next came axial coding. Similar ideas were grouped into bigger themes. After that, selective coding was used. This step built a main idea based on the research questions. It showed how interdisciplinary courses affected students' learning and growth.

Information Saturation Validation

Triangulation was used to verify the data sources, comparing interview content from different participants to ensure the stability of the research results. The study compared perspectives from different participants to ensure logical coherence in the data analysis and eliminate the impact of any biased data on the overall conclusions. Additionally, some participants were invited to review the research results to confirm that the analysis accurately reflected their learning experiences. Furthermore, two researchers independently coded the data and cross-checked their results to improve the reliability of the data analysis. Next, the analysis results were validated using the frameworks of scaffolding theory and symbolic interactionism. Lastly, experts from fields such as education, communication, and law reviewed the research report to confirm the validity and applicability of the analysis results.

RESULTS

This study employed semi-structured interviews and thematic analysis, applying the three steps of open coding, axial coding, and selective coding to identify the core factors and mechanisms by which interdisciplinary courses affect students' learning experiences.

Professional Growth

In the open coding phase, we extracted key terms from the interview data, such as teacher charisma, group collaboration, knowledge transfer, social responsibility, confusion about disciplinary integration, and improvements in critical thinking (as shown in Table 1).

Table 1: Open Coding

No.	Interview Excerpt	Extracted Keywords
1	I really like the teacher; I will listen to whatever he says.	Teacher Charisma
2	The group collaboration is very efficient.	Group Collaboration
3	My learning attitude is not so goal-oriented; I don't deliberately pursue a high GPA.	Non-Instrumental Attitude
4	I analyze legal phenomena in films using communication theories.	Knowledge Transfer
5	I used legal knowledge to refute unreasonable demands from customers at the travel company.	Knowledge Application
6	The course made me more socially responsible, and I will consider public welfare work when choosing my future career.	Social Responsibility
7	Team collaboration made me better at communicating with people from different backgrounds.	Team Collaboration
8	I learned a diverse range of interdisciplinary knowledge.	Course Content Diversity
9	The class format involves the teacher explaining first, then students presenting.	Flipped Classroom
10	Each class uses a movie about a social issue to explain related legal knowledge.	Case Analysis
11	The assignment required collecting materials, which enriched and expanded my knowledge.	Exploratory Learning
12	I analyzed legal phenomena in films using communication theories and received recognition for creating a new section.	Interdisciplinary Application
13	The course made me view problems more comprehensively and reduced my one-sided criticism of the domestic environment.	Critical Thinking
14	After the course, I paid more attention to changes in policies and regulations to avoid project risks.	Professional Competence

15	Team collaboration made me better at communicating with people from different backgrounds.	Soft Skills Development
16	Interdisciplinary learning made me more open to knowledge from other fields.	Lifelong Learning Orientation

The guidance of the teacher and course design (such as case analysis, group collaboration, and problem-based learning) provide the necessary support, enabling students to enhance their cognitive abilities through independent exploration gradually. Many participants noted that such courses and group work helped them become more independent and develop critical thinking skills, as teachers encouraged discussion rather than simply providing answers. As one participant shared, "The flipped classroom model in the course was beneficial to me. The teacher didn't give us the answers directly but guided us to find solutions through discussion and reflection. This method taught me how to view problems from different angles and developed my critical thinking. Over time, I became more independent in my thinking and started asking deeper questions, no longer solely relying on the teacher's guidance (Participant LQY, Female, Media Management)".

Another described,

> "In the course, we didn't just passively receive information; instead, we worked on solving practical problems through group collaboration and case discussions. Each group member came from a different disciplinary background. In the collaboration, I not only deepened my understanding of my own subject knowledge but also learned how to combine legal perspectives with viewpoints from other disciplines, which boosted my innovative thinking (Participant WYM, Male, Artificial Intelligence) ".

The scaffolding effect of interdisciplinary courses is reflected in how teachers help students construct frameworks of understanding through guiding questions, case analysis, and classroom interaction, lowering the entry barriers of various disciplines. For example, in group collaborations, students are encouraged to discuss the same social issue from different disciplinary perspectives, fostering knowledge transfer and critical thinking skills.

In the open and axial coding sections of the research findings, several influencing factors were identified, including teacher charisma, group collaboration, knowledge transfer, social responsibility, and the enhancement of critical thinking. These elements highlight how course design, teacher guidance, and student collaboration affect the learning experience.

Cultural Adaptation

In the axial coding phase, based on the concepts derived from open coding, we summarized how interdisciplinary courses promote students' cognitive

development, social interaction, and autonomy through mechanisms such as teacher guidance, experiential learning, interest-driven activities, knowledge transfer, and discussions on social issues (as shown in Table 2).

Table 2: Axial Coding

Theme Category	Open Coding Keywords
Teacher and Course Design Attractiveness	Teacher charisma, Course content diversity
Practical and Participation	Group collaboration, Flipped classroom, Case analysis
Interest-Driven Learning Motivation	Non-instrumental attitude, Exploratory learning
Knowledge Transfer and Innovation	Knowledge transfer, Knowledge application
Social Issue-Driven Reflection	Social responsibility, Critical thinking
Self- Practice and Action	Knowledge application, Social responsibility
Comprehensive Ability Improvement	Team collaboration, Professional Competence, Soft skills development
Shaping of Intrinsic Values	Social responsibility, Lifelong learning orientation

Interdisciplinary courses do not just provide knowledge. The teachers also act as guides who help students enter a world of diverse knowledge. Most participants noted that interdisciplinary courses broadened their academic horizons and deepened their understanding of cross-cultural issues. For example, one student noted,

> "What attracted me most about this course was the teacher's heuristic teaching method. She does not directly teach theories; instead, she first presents a social phenomenon, asking us to analyze it from our own academic backgrounds, then guides us to look at it from other disciplinary perspectives. This made me realize that sociological research cannot be separated from perspectives like communication, law, and even economics (Participant LQY, Female, Media Management) ".

Similarly, another student shared,

> "The teacher starts with a film scene as a case, for example, discussing the ethics of artificial intelligence emotions and the rights of replicants. For students with a computer science background like me, this approach breaks the boundaries of traditional technical education and encourages us to think about the relationship between technology and society (Participant WYM, Male, Artificial Intelligence)."

Interdisciplinary courses also emphasize practical learning, such as group cooperation, case studies, and simulation experiments, which allow students to apply and construct knowledge in real-world contexts. Participants noted that collaborating in groups with peers from diverse backgrounds deepened their understanding of interdisciplinary cooperation. For example, one participant noted,

> "My group members come from different academic backgrounds. I had to work with computer science students to explore how to use AI to enhance awareness of film and television law, and with law students to discuss intellectual property issues. This collaborative mode helped me truly understand the meaning of interdisciplinary work (Participant HHY , Male, Media Economics)".

Similarly, another student shared,

> "In the past, legal courses focused more on theoretical analysis, but this course required us to collaborate with students from communication studies to design a simulated public relations crisis management scenario. We not only had to analyze legal terms but also consider how to explain legal issues to the public. This practical activity made me realize the important connection between law and social communication (Participant SH, Female, International Law)"

The openness and exploratory nature of interdisciplinary courses help students shift from passive learning to active exploration, moving away from focusing solely on grades and instead becoming more interested in discovering their academic passions. Participants noted that this approach encouraged them to step outside their established zones of knowledge, sparking academic curiosity and motivating them to explore unfamiliar areas. As one participant reflected, "I used to focus on data and models in economics, but this course made me start thinking about the relationship between economics, culture, social systems, and law. For example, we discussed the relationship between female labor participation rates and the portrayal of women in films, which led me to explore social and cultural factors beyond economics (Participant HHY, Male, Media Economics)". Another added,

> "This course made me reassess how to approach historical research. In the past, we primarily relied on literature analysis; however, this course incorporates legal perspectives to analyze historical texts. This interdisciplinary approach sparked a new interest in research methods (Participant SH, Female, International Law).

Interdisciplinary courses not only provide knowledge from different fields but more importantly, they cultivate students' ability to transfer knowledge to new areas, enabling multidisciplinary innovation. One participant observed,

> "In this course, I learned legal logical thinking, which made me pay more attention to data privacy and ethical issues while creating immersive interactive art. When working on AR art installations, we considered legal issues like whether data collection from viewers was compliant, something I had never thought about before (Participant LYZ, Male, Digital Media Arts).

Another explained,

> "We studied discrimination in AI algorithms, such as how recruitment algorithms unintentionally exclude female job applicants. This made me start paying attention to the role of law in technology ethics and encouraged me to incorporate more critical perspectives on technology into my future research (Participant SH, Female, International Law).

The interactive mechanisms in interdisciplinary courses not only help students integrate knowledge from different disciplines but also shape their thinking, practical skills, and sense of social responsibility. Through teacher guidance, practical activities, and discussions on social issues, students gradually form a more open and critical perspective. An innovative cognitive framework, laying a foundation for their future career development and social participation.

The mechanisms of knowledge transfer and innovation, interest-driven learning motivation, reflection driven by social issues, and independent practice and action in the axial coding indicate that interdisciplinary courses promote students' heuristic thinking through heuristic teaching, discussions on social issues, and practical activities. Students no longer rely on direct guidance from teachers but instead, through collaboration with classmates from different disciplinary backgrounds, explore the connections between disciplines, which enhances their independent learning ability and critical thinking skills. This answers RQ2 of this research.

Institutional Challenges

In this process, teachers lower the learning threshold through their teaching style and the flipped classroom model, enabling students to explore more complex knowledge systems under guidance. As the scaffolding is gradually removed, students can independently apply the knowledge they have learned to analyze real-world problems, develop critical thinking, and ultimately form the ability for continuous learning and self-directed practice (as shown in Table 3).

Table 3: Selective Coding

Core Themes	Axial Coding Categories	Final Summarized Influence Mechanisms
Core Factors Affecting Learning	Teacher and Course Design Attractiveness, Practicality and Participation, Interest-Driven Learning Motivation	Increase learning interest, promote knowledge absorption, enhance learning experience
Inspiring Thinking and Self-Practice	Knowledge Transfer and Innovation, Social Issue-Driven Reflection, Self-Practice and Action	Foster critical thinking, cultivate innovation ability, enhance social responsibility
Intrinsic Development	Comprehensive Ability Improvement, Shaping of Intrinsic Values	Cultivate lifelong learning habits, develop a global mindset, and foster a sense of social responsibility.

Learning is not only a process of acquiring knowledge but also a process of continuously constructing and adjusting meanings through social interaction. In interdisciplinary courses, students engage in in-depth communication with teachers and peers through group collaboration, case discussions, and social issue analysis. In this interaction, they reflect on and reshape their cognitive frameworks. The dynamic interaction between teachers and students, as well as peer collaboration, not only helps students deepen their understanding of knowledge from different disciplines but also enhances their sense of social responsibility. This allows them to apply what they have learned in real-life situations and fosters the development of personal values and comprehensive abilities.

Core Factors Affecting Learning. The attraction of the teacher and course design, the practicality and engagement of the activities, and interest-driven learning motivation are the most important factors in interdisciplinary courses. Through engaging teaching design and challenging practical activities, the course can spark students' interest in learning, helping them actively absorb knowledge from various disciplines and enhancing their overall learning experience. Students described that ,

> "The practical activities and discussion sections in the course made me more interested in learning. For example, the teacher used case analysis and group projects to help us connect the theories we learned with real-world problems. I realized that technology is not just about algorithms and code; it is closely related to society, culture, and even law. (Participant WJ, Female, Chinese Literature)".

Inspiring Thinking and Self-Practice. Knowledge transfer and innovation, reflection driven by social issues, and independent practice and action are key mechanisms that enable interdisciplinary courses to stimulate students' thinking effectively. Many participants noted that these mechanisms were crucial for them to fulfill their social responsibilities and to engage with new knowledge critically. For instance, one stated,

> "I learned how to combine sociological theories with the ways of thinking from other disciplines. This interdisciplinary learning gradually made me realize that the boundaries between disciplines are not fixed. We need to examine and solve real-world problems from an interdisciplinary perspective. For example, we discussed how to use the combination of sociology and law to analyze current social policies (Participant ZSM, Female, Sociology).

Another shared,

> "Interdisciplinary learning not only helped me achieve breakthroughs academically, but also made me aware of the multidimensional factors behind social issues. In the course, we studied how the cultural industry can integrate environmental protection topics, which sparked my attention to social responsibility. This not only helped me grow in knowledge, but also made me more conscious of promoting social change (Participant SH, Female, International Law) ."

Intrinsic Development. Interdisciplinary courses not only contribute to knowledge acquisition but also have a profound impact on students' professional qualities, teamwork, and personal values. Through multidisciplinary learning and interaction, students can develop lifelong learning habits, enhance their professional skills, and, by collaborating with others and reflecting on their experiences, continually foster personal growth and shape their values. As one participant emphasized, "In the interdisciplinary course, I realized that as a scholar, it's not enough to have solid expertise; I also need to learn how to collaborate with experts from different fields. This ability is very important for my future career. I have already started seeking cross-disciplinary collaborations and hope to integrate broader perspectives into my research (Participant SH, Female , International Law). Another participant reflected,

> "The course made me realize that policy design cannot ignore the practical needs of society. Besides the legal regulations, the public's understanding and acceptance also need to be taken into account. By collaborating with students from the communication, I not only enhanced my professional skills but also became more attentive to the voices of vulnerable groups in society (Participant LYZ, Male, Digital Media Arts) ."

Through well-designed teaching support and interactive mechanisms, interdisciplinary courses provide students with a multidimensional learning experience and cognitive development. This practice-based learning environment not only promotes students' critical thinking and innovation but also helps shape more socially responsible values. As the scaffolding in the course gradually fades away, students are able to apply interdisciplinary knowledge flexibly and make effective responses and decisions in complex social situations.

The selective coding section discussed how teacher guidance, course design, and practical activities support students in developing autonomous learning abilities, helping them analyze real-world problems in a multidisciplinary context, and continuously adjust their cognitive frameworks through social interaction. Furthermore, through interdisciplinary learning, students not only acquire knowledge from multiple disciplines but also apply it flexibly in real-world situations, promoting the shaping of their intrinsic values and the enhancement of their comprehensive abilities. This approach drives students' intrinsic development and lays a foundation for future professional development and social engagement, answering RQ3.

DISCUSSION

The Impact of Interdisciplinary Courses on Students' Learning Experiences

Interdisciplinary courses break the limits of traditional subjects. They help students connect different areas of knowledge and support new ideas and ways of thinking. This kind of learning opens up their thinking and builds critical thinking skills. The course content is flexible, so students can look at problems from many sides. They often find new answers by combining ideas from different subjects. These courses often include group projects and real-world tasks.

Interdisciplinary courses also affect how students work with others. Students must work with classmates from other fields. Routhe et al. (2024) found that these courses build teamwork and communication skills, especially when solving hard problems. In these cases, students learn to mix knowledge and skills from different areas. One main problem is course design. Neuman et al. (2022) study show that if the course is too hard or the mix of subjects is not clear, students may feel stressed and confused. This can hurt their learning. Teacher need to match the course content with what students can understand, so that students do not feel lost or anxious.

Core Mechanisms of Interdisciplinary Courses

One important part is mixing knowledge. Routhe et al. (2024) said that these courses help students understand and use knowledge from different areas. This helps students think in a clearer and more organized way.Another key part is learning through projects. These courses do not just use lectures. Instead, they use real projects or case studies to teach. Bruce et al. (2004) said that this kind of

learning helps students see problems from different sides and work together to solve them. It improves their thinking and creativity.

The teacher's role also changes. In interdisciplinary courses, the teacher acts more like a guide. They help students connect different subjects and find good ways to solve problems. Neuman et al. (2022) study show that teachers in these courses need to know more than one subject and plan lessons that keep students active and creative. This helps students bring ideas from different fields together. It also helps them improve both their social and creative thinking skills. Routhe et al. (2024) found that teamwork in these courses helps students see how knowledge from different areas can connect or clash. In interdisciplinary courses, grading is more varied. It looks at how students solve real problems and how creative they are.

The Shaping of Students' Lifelong Learning and Social Responsibility through Interdisciplinary Courses

Interdisciplinary courses are important because they help students connect and use what they learn in different subjects. This kind of learning makes students more curious and better at learning by themselves. Gidley et al. (2010) said that interdisciplinary courses help students learn on their own. This helps them keep gaining new skills and adapt to changes in the world. Bassachs et al. (2020) said that interdisciplinary education builds strong thinking and problem-solving skills. These skills help students learn independently when facing future challenges. They are the core of lifelong learning. Overall, these findings demonstrate that the interdisciplinary educational strategies developed in the Chinese context can inform global discussions on graduate education reform, supporting the internationalization of curricula and fostering student adaptability in diverse and rapidly changing environments. Interdisciplinary courses play a key role in fostering social responsibility among students. Unlike traditional subject-based learning, these courses incorporate social, moral, and environmental issues into the curriculum. This approach helps students recognize the complexity of societal challenges while demonstrating how individual actions impact others and the wider world. Consequently, students develop greater concern for social welfare and civic engagement.A distinctive feature of these courses is their emphasis on practical, real-world applications. Through hands-on activities like community service projects, students address genuine social problems and cultivate a sense of responsibility for creating solutions. As Barnett et al. (2017) demonstrated, interdisciplinary education enables students to move beyond theoretical knowledge, actively contributing to societal improvement while they learn.

While the findings of this study are rooted in the context of Chinese-foreign cooperative graduate education. Their implications extend well beyond the national setting and offer valuable insights for global education policy and practice. As higher education systems worldwide grapple with the dual imperatives of quality enhancement and interdisciplinary innovation, the experiences and mechanisms identified in this research provide practical strategies for fostering connotative development internationally. Specifically, the

integration of scaffolding theory and symbolic interactionism demonstrates how thoughtfully designed interdisciplinary courses can bridge disciplinary divides and nurture both cognitive growth and social interaction among graduate students. This approach aligns with the global movement toward learner-centered, practice-based, and socially responsible education models. Moreover, by foregrounding the experiences of students in the Global South, the study highlights how localized innovations in teaching and learning can inform broader debates on educational equity, cross-cultural collaboration, and curriculum reform. In this sense, the research not only responds to the calls of international policy initiatives. Such as China's Education Modernization 2035, but also contributes new perspectives to the ongoing evolution of global graduate education, especially in supporting marginalized and boundary-crossing student populations.

The interdisciplinary course experiences of Chinese-foreign cooperative programs offer valuable guidance for international student advisors and cross-cultural teaching teams worldwide. The findings demonstrate that integrating interdisciplinary perspectives, case analysis, and collaborative projects within the curriculum can enhance international students' adaptability and improve their academic performance, supporting their integration into global higher education environments. Through diverse course content and group collaboration, instructors can encourage active student participation and mutual understanding, while providing a supportive environment that fosters the development of intercultural skills.

Implications

This study contributes to graduate education by examining the impact of interdisciplinary course design on intrinsic development, integrating situational teaching, scaffolding theory, and symbolic interactionism theory. It fills a gap in existing research and offers innovative suggestions for optimizing higher education policies. The study highlights how interdisciplinary courses foster students' innovative thinking and independent practice abilities through heuristic thinking and autonomous learning. By interviewing graduate students from Chinese-foreign cooperative universities, the research reveals how such courses enhance self-directed learning and research skills. The study expands the application of intrinsic development concepts, offering practical guidance for enhancing the quality of graduate education in China. The innovation lies in applying interdisciplinary courses to intrinsic development, offering a new theoretical framework and strategies for enhancing students' thinking and practical abilities in graduate education.

A distinguishing feature of this study lies in its articulation of a Global South perspective, situating Chinese-foreign cooperative graduate education within the broader discourse of educational equity and diversity. By foregrounding the lived experiences and agency of students in a rapidly developing, non-Western context, the research challenges dominant narratives often shaped by institutions in the Global North and contributes to a more pluralistic understanding of graduate education reform. Importantly, the findings illuminate how interdisciplinary

course design can empower not only mainstream learners but also those from marginalized, cross-disciplinary, or boundary-spanning backgrounds. Such as first-generation college students, students from less privileged regions, or those navigating multiple academic and cultural identities. This perspective enriches international debates on access, inclusion, and innovation, underscoring the need for graduate education systems worldwide to recognize and support the unique aspirations and challenges faced by diverse student populations. By integrating localized knowledge with global theoretical frameworks, the study adds an essential voice from the Global South to the evolving landscape of international higher education.

Moreover, this study offers important insights for international learning environments worldwide. By identifying factors that foster students' critical thinking, sense of social responsibility, and autonomy, it provides reference points for understanding student satisfaction and success in cross-cultural contexts. The research further highlights that experiential learning, interdisciplinary collaboration, and guided reflection are effective strategies for enhancing the intercultural competence of students, particularly those from less advantaged educational backgrounds, and cultivating their awareness as global citizens. These findings not only inform the development of Chinese-foreign cooperative programs, but also contribute to curriculum design and teaching practices at universities across the globe. Ultimately, this research can support the creation of inclusive and globally competitive learning communities.

Ultimately, this study highlights the significance of promoting interdisciplinary collaboration and responsive cross-cultural education. Such courses offer valuable insights for international education offices, faculty development initiatives, and leaders in higher education. Universities are encouraged to strengthen support systems for international students and to invest in intercultural teaching training for faculty. Future research could further examine how universities empower diverse student populations, ensuring equitable participation and satisfactory outcomes in an increasingly globalized academic environment.

LIMITATION

Despite its valuable insights, this study is subject to several limitations that should be acknowledged. The participant sample is limited to a small group of graduate students from Chinese-foreign cooperative programs, primarily representing Chinese domestic backgrounds within internationalized educational environments. As a result, the findings may not fully capture the diverse perspectives of international students or those from ethnic minority or marginalized communities. Additionally, the qualitative methodology, while providing depth and nuance, restricts the generalizability of the results to broader populations.

ETHICAL APPROVAL

This study obtained prior approval from the Research Ethics Committee of Beijing Normal–Hong Kong Baptist University (Ref No. REC-2024-52). Participants 'identities remain confidential using pseudonyms, and all personal details have been anonymized. Data are securely stored, with access limited to the research team. Direct quotations were edited to protect privacy.

INFORMED CONSENT

All participants signed informed consent forms before the start of the study, clearly understanding the purpose, process, potential risks, and the voluntary nature of their participation.

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