

Three-Dimensional Integration of Role Modeling, Contextual Immersion, and Research-Informed Teaching: A Practical Model and Efficacy Study of Supervisor-Student Community for Practical Education—A Case Study Based on the “Brightness Journey” of Wenzhou Medical University

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Abstract: Serving as key components of advanced medical professionals, the training outcomes of postgraduate medical learners exert a direct influence on the long-term progress of the domestic healthcare system. To cope with real-world challenges in existing hands-on training for postgraduate medical students, including the separation of theory from practice and the disconnection between tutor guidance and student participation, this study puts forward a feasible improvement strategy. This solution is grounded in the “Mentorship-Learning Community” concept and develops a multi-dimensional, holistic training framework for supervisor-integrated hands-on education, featuring role-model guidance, situational immersion, and research-oriented tutoring. Such a framework intends to resolve the above-mentioned practical obstacles and realize the harmonious integration of value guidance, competency development and academic knowledge inheritance. By taking Wenzhou Medical University’s “Brightness Journey” initiative as a representative case study, this study conducts an in-depth exploration of its operational mechanism and educational effectiveness. By virtue of supervisors’ role-model guidance, situational immersion within grassroots environments and research-oriented tutoring grounded in empirical feedback, this program promotes the shift of postgraduate hands-on training from extrinsic indoctrination to internalized value recognition. It thereby delivers a usable theoretical framework and practical reference for establishing a supervisor-integrated practical training system tailored to medical disciplinary traits.

Keywords: Mentorship-embedded practical education; Mentorship-learning community; Practical model; Role modeling; Contextual immersion; Research-informed teaching

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1. Introduction

1.1. Epoch Background and Policy Guidance

The 2020 National Postgraduate Education Conference emphasized: “The fundamental task is to Foster Virtue through

Education, comprehensively enhance the quality of postgraduate cultivation, and promote the connotative development of postgraduate education”^[1]. “Opinions on Accelerating the Reform and Development of Postgraduate Education in the New Era” stressed: “Postgraduate education should take fostering virtue and cultivating talents, serving national needs, improving quality, and pursuing excellence as its main line, and regard the effectiveness of fostering virtue and cultivating talents as the fundamental criterion for testing postgraduate education work”^[2]. Evidently, implementing the fundamental task of ‘Fostering Virtue through Education’ has become the main theme for promoting high-quality development of postgraduate education in the new era. As the core force of high-level medical talents, the cultivation quality of medical postgraduates directly relates to the future of the national health sector, necessitating careful consideration that equally emphasizes the cultivation of both “medical ethics” and “medical skills.”

1.2. Problem formulation and research entry point

At present, most postgraduate medical training courses follow a three-year academic cycle. Given such a tight study schedule, postgraduates need to finish a wide range of academic tasks such as curriculum learning, clinical practice and research assignments, which leaves them with insufficient time to participate in hands-on practical training activities. Nevertheless, academic supervisors seldom take an active part in students’ hands-on training programs, even though they are capable of providing substantial professional guidance. Such dilemmas regarding practical education can also be observed among postgraduate medical students at Wenzhou Medical University. Under such realistic circumstances, the volunteer service project named “Brightness Journey,” focusing on eye health, was officially initiated back in 2012. With joint participation of academic advisors and postgraduate learners, this initiative has built up an innovative integrated training mode featured by “personal demonstration, situational immersion and research-oriented teaching”. It offers both practical experience and theoretical support to address the above-mentioned obstacles, as well as helps cultivate a modern interactive bond between tutors and students.

2. Theoretical analysis

Drawing on the 14-year practical experience accumulated from the “Brightness Journey” volunteer program, this study constructs an analytical framework from three perspectives: role-model guidance, practical teaching, and research-oriented tutoring, which is built around the core notion of a guided learning community. Subsequent chapters conduct an in-depth discussion on each dimension separately.

2.1. Core concept

Within conventional tutor-student interaction modes, academic knowledge sharing and research supervision are mostly delivered in a one-way manner by academic advisors, which mainly embodies the instructional dimension of education. The term “Community” was first proposed by the German sociologist Ferdinand Tönnies, who defined it as a living space full of warmth, mutual trust, and high identification^[3]. A “Mentorship-Learning Community” is not a loose teacher-student combination. Its connotation is an educational form and interactive process where mentors and postgraduates, based on shared moral principles and value pursuits, aim for knowledge transmission/creation and holistic education. Through communication, participation, and cooperation within a shared experiential learning environment, they achieve self-value and common development. It primarily manifests as an egalitarian, interactive, and symbiotic developmental relationship^[4].

2.2. Theoretical lens

This study takes the long-running “Brightness Journey” volunteer service program as a practical carrier to fully tap into cooperative strengths shared by academic supervisors and postgraduate medical learners. Such efforts help deliver targeted hands-on training for medical graduates, strengthen their patriotic awareness and professional beliefs, and build a stable supervisor-student community committed to protecting regional residents’ eye health. Following this, the research

comprehensively explains the real-world application values and inherent educational logic behind this service project by adopting analytical perspectives derived from social learning theory, situated learning theory, and constructivism theory.

The dimension of role-model education derives from the exemplar mechanism of social learning theory. By setting personal examples in real-life practice and aligning words with deeds, academic supervisors display proficient clinical skills and compassionate medical humanity, serving as an intuitive benchmark for postgraduates to learn from and internalize core values and beliefs. Supervisors and postgraduate learners make joint plans, organize and take part in hands-on educational activities, which promote mutual growth from interactive teaching and learning. Such collaborative practice helps foster postgraduates' professional ethics, such as reverence for life, respect for patients, and accountability awareness, and enables them to grasp empathy, effective communication, and ethical decision-making capabilities.

The situational immersion dimension is built upon the notion of legitimate peripheral participation derived from situated learning theory. The distinctive plateau setting creates an authentic scenario carrying profound educational significance. Postgraduates gradually shift from completing supportive auxiliary assignments to deep involvement in core clinical practices, which cultivates their sense of professional mission and personal integrity under real-world responsibilities and cultural influences. Such immersive surroundings act as an inherent educational driver to nurture postgraduates' inner spiritual development.

The research-oriented tutoring dimension takes constructivist theory as its theoretical foundation, highlighting the formation of cognitive frameworks and value systems by tackling authentic, practical issues. This initiative converts real-world difficulties such as plateau-associated eye disorder prevention, treatment and medical device improvement into targeted research subjects. It encourages postgraduates to shift from front-line service practitioners to problem-focused researchers through the practice-reflection-research cycle, which further transforms social accountability into steady research enthusiasm and patriotic awareness.

3. In-depth case description

3.1. Case background

Medical education is not only about imparting technical skills but also carries the mission of cultivating a “Benevolent Medical Heart.” The ‘Brightness Journey’ practice service project of Wenzhou Medical University, spanning 14 years, is not merely a medical aid initiative but a dynamic case of supervisor-student practical education. Over the past 14 years, the project has taken the plateau as a classroom and brightness as its mission, constructed a three-dimensional educational model of “Mentor Role Modeling — Plateau Contextual Immersion — Research-Informed Teaching.” It has achieved the organic integration of value guidance, academic inheritance, and the common growth of teachers and students, transforming short-term volunteerism into lifelong professional conviction. This case provides a highly demonstrative example of mentorship-embedded practical education in medical colleges.

3.2. Three-dimensional composition system of the mentorship-embedded practical education path in the “Brightness Journey”

To begin with, supervisors provide in-person role-model guidance. Within the supervisor-student partnership at medical schools, academic advisors not only transmit knowledge but also serve as benchmarks for medical ethics and professional morality. In the “Brightness Journey” program, supervisors' persistent role-modeling practices fully embody the core spirit of the medical oath “Entrusted with Health and Life”, highlighting their essential role in fostering postgraduates' practical capabilities and ethical awareness. Under harsh high-altitude plateau conditions, every choice and persistent effort by academic supervisors becomes a powerful real-life case for hands-on training. By witnessing real-life moments, such as supervisors conducting surgeries with oxygen support, postgraduates thoroughly internalize the professional principle of prioritizing human lives above all else. These immersive experiential teaching settings effectively bridge the gap between academic knowledge delivery and value cultivation. They seamlessly integrate clinical competence

and professional accomplishment in real-world practice, achieving far better educational outcomes than conventional classroom-based instruction. Throughout the implementation of this program, as postgraduates gradually shifted from preliminary diagnostic checks to participation in clinical surgeries, academic supervisors consistently followed the core guiding philosophy of “letting go but keeping an eye”. According to remarks from Professor Lv Fan, a core founder of this initiative and a distinguished expert in China’s ophthalmology and optometry sector, postgraduates maintained active communication with residents and devoted themselves to clinical diagnosis and treatment under supervisors’ professional guidance amid various hardships. Such practice has helped them achieve all-around advancement in hands-on awareness, social accountability, clinical proficiency, and practical professionalism. Academic supervisors also experienced profound spiritual refinement when heading field teams, fostering reciprocal advancement through interactive mentorship and learning. On a deeper level, the supervisor cohort has overseen this initiative for 14 consecutive years, adhering to the ethos of “bearing hardships personally so as not to let patients down.”

In the early stages of the project, conditions were difficult, but the mentors’ continuous emphasis on the significance of the Brightness Journey and the responsibility of medical professionals gradually shaped a profound team culture, attracting batches of student volunteers to join. Several former participants have taken the initiative to give back to this initiative after their graduation. As an illustration, graduate-turned-entrepreneur Chen Hang set up a dedicated special-purpose fund to sustain its long-term operation, which demonstrates the sustainable continuity and motivating influence of intergenerational spiritual inheritance.

Secondly, situational immersion within high-altitude plateau settings. Serving as a unique carrier for situational learning, plateau regions facilitate the thorough integration of clinical practice and humanistic education amid harsh natural surroundings, cultivating postgraduates’ resilient and compassionate professional traits. Distinctive geographical features and climatic conditions of high-altitude zones build a trial-like educational scenario. It enables supervisors and student participants to gain spiritual refinement and competency advancement when confronting real-world clinical challenges. For one thing, academic advisors and postgraduates have to cope with extreme natural barriers, including oxygen deficiency, frigid temperatures, and intense ultraviolet radiation at elevations above 4,000 meters. Such an experience tests physical limits while shaping strong personal willpower, bringing educational gains far beyond conventional classroom lectures. For another, against the backdrop of inadequate medical resources in plateau areas, the service team regards the mobile surgical vehicle “Brightness Bus” as its core clinical service platform. When handling unexpected incidents such as vehicle malfunctions and abrupt weather changes, team members provide on-site medical care for residents along the journey. This mobile treatment pattern pushes participants out of their comfort zones, improves their adaptability and practical problem-solving skills in complex scenarios, and helps them develop clinical wisdom tailored to local realities. Clinical cases encountered on the plateau are never mere medical subjects; they carry unique and profound humanistic connotations.

By witnessing real-life scenarios, such as a young girl regaining eyesight after cataract surgery or elderly locals expressing sincere gratitude, postgraduates obtain experiential perceptions of life dignity and the core duties of medical practitioners. Scenes including patients showing thanks via indigenous local rituals, as well as supervisors and postgraduates observing the grassroots development of plateau ophthalmic services from scratch, allow learners to directly feel the emotional bond between medical staff and patients, and witness the practical effects of national policies like health-driven targeted poverty alleviation at the community level. In this immersive process, medical humanistic values and national public service missions are transformed from abstract notions into tangible and relatable educational content. It effectively guides postgraduates to move beyond pure technical-oriented thinking and build a deeper professional identity and social accountability.

4. Conclusion

By taking the “Brightness Journey” initiative as its research sample, this paper puts forward a three-dimensional

integrated framework of value-oriented guidance, situational cultivation and research-driven tutoring for graduate hands-on education. This framework integrates supervisor-student mentorship into social practices aligned with national strategic needs. It leverages role-model demonstration, immersive situational learning and academic research to deliver comprehensive education, bridging the divide between hands-on training and professional cultivation and facilitating postgraduates' growth via real-world practice. It serves as a viable cultivation approach to nurture high-caliber medical practitioners with strong national awareness and social accountability.

Disclosure statement

The authors declare no conflict of interest.

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