

COMMENT

Conceptual innovation and practical value of China's citywide industry-education consortium in vocational education

Lingli Li*

Institute of Technology and Vocational Education, Shenzhen Polytechnic University, Shenzhen 518055, Guangdong Province, China

ABSTRACT

Promoting the deep integration of industry and education is key to achieving high-quality development in vocational education. Recently, China has proposed the establishment of a "citywide industry-education consortium", which structurally integrates industry and education within the framework of regional economic development and government governance. Through entity-based operations, these consortia structurally reshape the diverse stakeholders in vocational education, providing them with practical integrated support and thus opening up new spaces for the deep integration of industry and education. In this context, vocational education should take root in local realities, accelerate theoretical innovation, effectively implement the orientation of serving regional economic development, accelerate the adaptive improvement of key operational capabilities, comprehensively carry out institutional reforms centered on the entity-based operation of the industry-education consortium, and enable the construction of a citywide industry-education consortium based on digital transformation.

Key words: industry-education integration, citywide, industry-education consortium, vocational education

INTRODUCTION

After years of exploration and refinement, China has fundamentally accomplished a top-level design and systematic framework for integrating vocational education and industry. The nation is now actively pursuing high-quality, profound integration to further strengthen the synergy between these two crucial sectors. However, several practical factors hinder the deep integration of vocational education and industry, such as the lack of universal indicators to measure such integration and the absence of a coherent framework for policy implementation at the grassroots level. In particular, the deep integration of education and industry is grounded in numerous detailed and nuanced practical

explorations; however, the top-level design by the state cannot be directly and swiftly translated into diverse specific action guidelines. Thus, there is an urgent need for local in-depth exploration and innovative breakthroughs to respond to national strategic goals. Recognizing this bottleneck, in December 2022, the General Office of the CPC Central Committee and the General Office of the State Council issued the *Opinions on Deepening the Reform of the Modern Vocational Education System Construction*,^[1] proposing the construction of a "citywide industry-education consortium" and suggesting the joint construction of about 150 citywide industry-education consortia in batches by 2025. In 2023, the Chinese Ministry of Education successively introduced policies to further interpret and clarify the construction

*Corresponding Author:

Lingli Li, Institute of Technology and Vocational Education, Shenzhen Polytechnic University, No. 7098, Liuxian Avenue, Nanshan District, Shenzhen 518055, Guangdong Province, China. Email: linglifq@szpu.edu.cn; <https://orcid.org/0009-0009-3462-1327>

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goals, requirements, and tasks of the citywide industry-education consortium and prepared the list of the first batch of 28 such consortia. For example, Shenzhen, with Shenzhen Polytechnic University as the leading school and Huawei Technologies Co., Ltd. as the leading enterprise, established the "Shenzhen Citywide Industry-Education Consortium" within the Shenzhen High-tech Industrial Park. This consortium jointly explores a new mechanism of "government setting the stage, enterprises posing the questions, and schools providing the answers", thereby promoting the deep integration of industry and vocational education.

"Establishing a citywide industry-education consortium" has become the primary focus in accelerating the construction of the modern vocational education system. It is also a significant measure in deepening the practice of industry-education integration. Although the proposal of "establishing citywide industry and education consortium" departs from the specific terminology of industry-education integration, it directly reflects the upgrading and deepening of this integration.^[2] To some extent, the citywide industry and education consortium can be seen as a realistic anchor and action guide defined by the state for a deep integration of industry and education. On the one hand, once operationalized, the citywide industry and education consortium composed of multiple stakeholders serves as an effective indicator of deep integration. On the other hand, constructing such a consortium can institutionally embed industry-education integration into the regional economic development process, achieving a "bundling" of industry and education, thus perfecting the localized practical framework for deep integration of industry and education. Overall, the proposal of a citywide industry-education consortium signifies a shift in China's industry-education integration practice from national-level planning to regional government-led local exploration. Thoroughly understanding the connotation and significance of constructing a citywide industry-education consortium is crucial for vocational education to meet challenges and rapidly advance transformative development.

CONCEPTUAL INNOVATION IN THE CONSTRUCTION OF A CITYWIDE INDUSTRY-EDUCATION CONSORTIUM

The reason why the construction of a citywide industry-education consortium has become a crucial task in promoting the modern vocational education system in China lies in its inherent strategic value and capability for deepening industry-education integration. Compared to previous forms and mechanisms of industry-education integration, the construction of a citywide industry-education consortium emphasizes government

leadership. Through tangible operations, it breaks down the barriers between different districts and organizations, tightly linking cities, industrial economies, and vocational education development within one city. This provides innovative paths and spaces for each entity, including vocational education, to overcome its development bottlenecks. The citywide industry-education consortium serves as a critical entity node that converges government, industry, and education. It signifies a deep strategic implementation of industry-education integration at the practical level and represents a strategic measure for deepening the practice of such integration. The concept has profound implications.

Strengthening government leadership to consolidate regional practical paths and support for industry-education integration

At the national policy level, the concept of "citywide" pertains to the perspective of improving social governance, with various levels of government as the core entities. Citywide governance plays the role of reshaping the structure and resource allocation model of grassroots governance.^[3] It possesses stronger advantages in resource integration and administrative capabilities, thereby reshaping the social governance system and mechanism within a larger governance unit and spatial scope, effectively resolving the dilemmas of grassroots social governance.^[4] By strengthening the role of government at the city level, the state systematically introduces the powerful political and administrative resources and coordination capabilities of local governments into the concrete practice of industry-education integration, creating local comprehensive solutions for deepening such integration. The local government's overall promotion of the entity-based process of alliances not only builds a specific framework for "bundling" industry and education but also systematically and institutionally embeds the practice of industry-education integration into regional development and governance processes, providing a localized path for deep integration. Such regional localization becomes a concrete practical orientation for industry-education integration, which is conducive to overcoming the difficulties of superficial yet generalized cooperation and continuously deepening integration practices.

Deepening the reshaping of education-industry integration structure to form a new integrated multi-entity framework

China explicitly mandates the substantial operation of a citywide education-industry consortium, which fundamentally entails the deep optimization of relationships among industry, academia, and government based on shared regional goals. For a citywide education-industry consortium, enterprises, schools, and government departments are all independently

functioning and, to some extent, interwoven into an independent entity. The effectiveness of this entity is primarily demonstrated through its substantial operations. The degree to which enterprises and schools exercise their agency is a crucial factor in determining the quality of education-industry integration. However, in reality, both parties, including schools and enterprises, often fall short of expectations, particularly with enterprises not playing a prominent role.^[5] This results in difficulties in leveraging organizational synergy and ambiguity in the roles of entities involved in education-industry integration.^[6] Enterprises and schools inherently possess contradictory attributes, as they belong to different types of institutions and follow different value objectives in education-industry integration activities.^[7] To some extent, the key to deepening education-industry integration is to harmonize the relationship between enterprises and schools, thereby enabling both parties to fully play their respective roles. The construction of a citywide education-industry consortium provides unprecedented spatial and practical contexts for high-frequency interactions among entities. Enterprises and schools will frequently interact and coexist, driven by regional economic development goals and continuously deepening their relationships. Additionally, the strong associations among the government, enterprises, and schools ensure the realization of a substantial agency of multiple entities. By embedding enterprises and schools into the regional governance and development system, the intrinsic motivation of both parties is activated. Government departments, enterprises, and schools form tight horizontal organizational linkages, ultimately creating a new integrated multi-entity framework that serves regional development.

Clarifying the primary-level vertical hierarchy in the practice of industry-education integration and strengthen the responsibility of local governments

Existing practices in education-industry integration often lack pathways for significant breakthroughs, typically displaying dispersed and fragmented characteristics. Scholars have noted that the optimal organizational form for education-industry integration transforms the relationship between schools and enterprises from inter-organizational to intra-organizational. A more practical approach involves the government establishing a supervisory body above vocational colleges and enterprises to oversee education-industry integration, thereby removing systemic barriers to school-enterprise cooperation.^[8] The national directive for the effective operation of a citywide education-industry consortium, crafted by the government, provides a clear vertical hierarchy and governance authority within the previously horizontally connected education-industry integration organizations. Local governments integrate enterprises

and schools based on economic development goals and play an authoritative role in governance. This creates a practical hierarchical adaptation system and vertical cohesion logic for the entities involved in education-industry integration. As a result, these entities can explore deeper integration within a broader vertical space guided by a clear governance structure.

Upgrading the systemic value of industry-education integration with a focus on holistic value innovation

A citywide industry-education consortium goes beyond the traditional separate considerations of industry and education, achieving a systemic upgrade in the value of industry-education integration. First, it establishes systemic goals at a level beyond individual industries and educational institutions. Through comprehensive government planning, these consortia integrate the objectives of industries and educational institutions with regional economic development goals, achieving goal alignment. Second, in practice, vocational education is "intertwined with industry advancement, industrial transformation, and regional development".^[9] This signifies that the integration of industry and education is upgraded from a practice within industries and educational institutions to a comprehensive regional practice; it evolves from an issue within the realms of industry and education to one within the perspectives of regional development and governance. Consequently, in addition to the goals of industrial, educational, and economic development, the citywide industry-education consortium will also become an important tool for regional government governance transformation, generating multiple functions, including serving urban comprehensive development and cultural innovation. Thus, they not only address specific issues of industry and education but also systematically respond to the challenges and problems faced in regional urban development. Finally, at the practical level, these consortia guide various stakeholders to focus on comprehensive value and pursue value enhancement and co-creation. Through integrated collaboration, diverse stakeholders transcend their interests and limited perspectives, shifting their focus from localized value to connecting new resources and energies in new spaces, concentrating on holistic value innovation, and achieving their own goals in the process of systemic value enhancement.

Deepening the reform of industry-education integration systems and mechanisms to achieve genuine substantive operations

The practice of industry-education integration has long faced challenges such as significant value differences, unclear roles and responsibilities of stakeholders, misaligned interest distribution, a lack of targeted

educational mechanisms, and mismatches between the supply and demand of talent cultivation.^[10] To address these issues such as an unclear division of responsibilities, superficial collaboration, and difficulties in coordinating interests and values—there is a fundamental need for deep reforms in systems and mechanisms. This reform is intrinsic to the construction of a citywide industry-education consortium. First, substantive operations must be realized through system and mechanism reforms. Substantive operations refer to transforming concepts into a specific, tangible state.^[11] The Ministry of Education's General Office issued a notice in 2023 on the construction of citywide industry-education consortia, which clarified the market-oriented principles, standards, and related requirements for substantive construction. The construction process based on these requirements is a process of deep systemic and mechanistic reform, and only through such reform can genuine substantive operations be achieved. Second, the realization of the organizational value and functions of the citywide industry-education consortium also necessitates system and mechanism reforms. As independent functional units, every function and value of the consortium is collectively undertaken and contributed by all relevant stakeholders within the consortium's system structure. Existing institutional and organizational mechanisms alone cannot effectively break down barriers and achieve collaborative efforts. Thus, the realization of the value and functions of a citywide industry-education consortium urgently requires innovative reforms in systems and mechanisms.

In summary, citywide industry-education consortia embed the national industry-education integration strategy realistically at the municipal level, structurally linking industrial, educational, and urban development. This makes the goals of industry-education integration practices more specific and the direction clearer. This also refines the mechanisms and makes the operational pathways more concrete. As a realistic anchor, citywide industry-education consortia ground the practice of industry-education integration in the specific developmental processes of regions. They are not only a strategic measure to deepen industry-education integration but also further enrich its systemic connotation. In the future, they will play a significant role in the development of regional cities, industries, and education.

PRACTICAL VALUE OF CONSTRUCTING A CITYWIDE INDUSTRY-EDUCATION CONSORTIUM FOR VOCATIONAL EDUCATION

The construction of a citywide industry-education consortium is not only a strategic measure to deepen the

practice of industry-education integration but also a comprehensive action plan addressing the practical issues of modern vocational education development. It further clarifies the practical content and direction of vocational education development, playing a realistic leading role in the current reform and development of vocational education.

Defining the logic and pathways for vocational education development

Through the construction of a citywide industry-education consortium, the reform and development of vocational education, the core drivers of enterprise participation in industry-education integration, and the overall development of regional cities are closely integrated. This integration clarifies and reinforces the development logic of vocational education at the operational level. In particular, it moves beyond an education-centric perspective, rooting vocational education in regional realities, and ties it deeply to regional development needs and industries. In contributing to regional urban development, vocational education explores innovations and achieves its own goals and values. This logic and pathway are not only realistic needs for regional urban and industrial enterprise development but also objective requirements for the development of vocational education itself. First, from the perspective of talent cultivation, only through deeper integration with enterprises can the necessary realistic conditions for cultivating and developing high-quality, specialized talent be created. Second, from the perspective of applied research and technological innovation, only by closely integrating with enterprises and industries can problem-and-demand-driven research be conducted, which is a necessary condition for conducting applied scientific research. Finally, from the perspective of the social service function of educational institutions, the deeper the integration with enterprises and industries, the more targeted and timely the services can be. The entire process of integration and the fulfillment of institutional functions also involve the dissemination of culture in new practical fields, collectively shaping new cultures and spirits. Only through deeper integration can educational entities broadly reshape their concepts, thinking, and behavioral habits, thereby truly addressing the challenges of vocational education development.

Guiding vocational education development and reform

Citywide industry-education consortia not only meet the new requirements of regional development but also guide the new direction of development and reform in Chinese vocational education, primarily in two major aspects. First, they emphasize breakthrough innovation rooted in local conditions. A key feature of constructing

citywide industry-education consortia is the emphasis on regionality and localization. Anchoring the citywide perspective means focusing on regional differences and specificities and establishing a realistic local foundation for deepening industry-education integration. The development of vocational education will pay more attention to regional characteristics and practical conditions. The local reality and the needs and problems of local industries and enterprises are the most fundamental realities and fields for vocational colleges, providing tangible soil and conditions for breakthrough innovation in vocational education. Taking root in the local regional reality is an inevitable choice for the development of vocational education. Second, it involves pioneering innovation that goes beyond the education-centered approach. The construction of citywide industry-education consortia is meant to lead relevant stakeholders in vocational education to break out of their inherent thinking and behavior patterns and to view development and integration practices from the perspective of an integrated system. The construction of citywide industry-education consortia clarifies that vocational education should be oriented toward serving real needs and seeking self-development in the process of serving regional economic development. This means internalizing industrial elements of enterprises as fundamental elements of vocational education's own development, truly forming a new logic of industry-education integration. This is a huge, innovative challenge for vocational education. This process actually includes a comprehensive reshaping of the stakeholders, organizations, and processes of vocational education and represents a profound innovation that transcends vocational education itself.

Leading the trends in talent cultivation practices in vocational education

The construction of a citywide industry-education consortium reshapes the space-time field of talent cultivation in vocational education, providing guidance and practical conditions for improving the adaptability and quality of talent cultivation in vocational education and highlighting the typological characteristics of talent cultivation in vocational education. On this basis, talent cultivation in vocational education will become more practical, localized, open, and innovative. First, talent cultivation in vocational education will have more localized characteristics. High-quality talent cultivation in vocational education must demonstrate typological characteristics. A citywide industry-education consortium, by embedding local industries and enterprise practice fields, takes demand as the orientation and problems as the starting point, closely linking it with reality to complete a comprehensive localized reconstruction and substantial on-site embedding of educational content, objectives, and

processes. This enables vocational education in different regions to construct their own characteristics and typological connotations. Second, talent cultivation will become more practical. An important goal of building a citywide industry-education consortium is to serve regional economic development. Vocational education will focus on serving the needs of local economic development and solving practical problems of enterprises, carrying out more educational practices in the process of service and contribution, and strengthening students' practical skills and problem-solving abilities. Finally, the practice of talent cultivation in vocational education will become more open and innovative. Diversified resources at the city level include not only visible materials, funds, talents, and equipment but also regional autonomy and local legal and policy construction resources in practice. This creates a huge space for industry-education integration to independently explore and innovate according to local characteristics. The practical problems and needs in enterprise practice are the source of new ideas and technologies. The deep embedding of vocational education in enterprise sites is itself a manifestation of increased openness and the embracing of a broader educational field.

Guiding the transformation of vocational education governance

"Governance differs from traditional management. Management is mainly government-led, unidirectional, controlling, unequal, and fragmented, while governance has a more comprehensive connotation. Governance emphasizes the diversification of governance subjects, multi-dimensional interaction, democratic equality, encouraging public participation, consultation and dialogue, and also places greater importance on the use of political, legal, moral, self-governance, and intelligent governance for systematic governance."^[12] The entity-based operation of a citywide industry-education consortium requires the formation of shared goals among multiple stakeholders, fixed human resources, stable operating funds, shared independent facilities, and a common institutional culture, which is essentially a process of organizational integration through the structural integration of multiple entities. This process cannot be achieved within the traditional vocational education management framework. Vocational education must break out of the existing single education management system and vision and achieve a transformation to modern governance. In particular, the requirements of entity-based operations pose real challenges to the transformation of vocational education governance, which will inevitably promote the transformation of vocational education governance in two aspects. On the one hand, vocational education will need to break through its own closed, single-linear

traditional management thinking and system; change the centralized top-down management concept; re-understand the governance field, objects, goals, and values from a governance perspective; and establish a more open and diverse systematic concept to connect with the construction of a citywide industry-education consortium. On the other hand, vocational education will need to carry out a systematic governance reconstruction based on the collaboration and connection of multiple stakeholders and a holistic perspective. It is necessary to accelerate the reform of mechanisms and systems, break down the barriers between departments, and establish governance mechanisms that correspond to practice based on systematic thinking. This involves reconstructing organizational structures and operating mechanisms to better connect with entity-based construction.

KEY ELEMENT IN THE CONSTRUCTION OF THE CITYWIDE INDUSTRY-EDUCATION CONSORTIUM

Citywide industry-education consortia are entity-based organizations led by regional governments with multiple stakeholders. The relevant stakeholders face a comprehensive reorganization of elements and system reconstruction. From the perspective of vocational education, actively participating in and promoting the construction of a citywide industry-education consortium should focus on strengthening self-development and reform in the following four aspects.

Accelerating the innovation of vocational education theory based on local practice

Theory is the forerunner of practice, meaning that it is the "head" of practice.^[13] The construction of a citywide industry-education consortium not only deepens the connotation of industry-education integration but also changes the perspective and way people understand vocational education. Vocational education urgently needs to accelerate the exploration and innovation of relevant theories to better promote the practice of consortium construction. First, it is necessary to break the inertia of education-centeredness and construct a new development concept. As a deep integration measure, the construction direction of a citywide industry-education consortium aligns with the country's innovative, coordinated, green, open, and shared development concepts. Vocational education must break away from the traditional education-centered concept and seek conceptual innovation in the process of implementing the country's new development concepts. Second, it is important to pay attention to regional systematic thinking, strengthen the conscious awareness of capturing and reflecting on educational issues in service and practice, strengthen organized research on

educational issues and their connotative significance in local practice scenarios, and promote the transformation of vocational education development experience in industry-education integration practice into theoretical and systematic forms.

Effectively implementing a service-oriented mindset for regional economic development

The construction of a citywide education-industry consortium in vocational education must emphasize a service-oriented approach. The orientation toward serving regional economic development aligns with the scientific direction that benefits the development of vocational education. Building a citywide education-industry consortium not only represents a deepening pathway of education-industry integration but also aligns with future industrial development trends. Future industries are characterized by the integration of multiple frontier technologies, the incorporation of new production factors, and multi-department, multi-entity, innovation-driven emerging industries. From the perspective of value creation, it becomes difficult to accurately distinguish the sources of value contribution in the final products of future industries. The organization of production appears fragmented and blurred, and future industry value creation no longer possesses clear production stages.^[14] Citywide education-industry consortia and vocational colleges undoubtedly play a significant role in this multi-entity, innovation-driven value creation. These consortia are also key mechanisms for constructing future regional industries. Vocational education must genuinely establish a service orientation, deeply embedding itself in the realities of regional economic and industrial development to achieve self-transformation through value contribution. Implementing a service-oriented mindset starts with establishing a clear service consciousness. It is essential to clarify the basic positioning of the citywide education-industry consortium in vocational education which is to be service-oriented and explore self-development and transformation pathways through value contribution. Additionally, implementing a service-oriented mindset requires a proper understanding of the service. Essentially, service here means enhancing the integration between industry and education and between enterprises and schools through the services provided by educational institutions. This exploration of vocational education's innovative space aims to empower regional economic and enterprise development and address real-world problems, and it is not merely about performing tasks for enterprises.

Accelerating adaptive reforms in vocational colleges

Vocational colleges need to rapidly enhance their adaptability in alignment with the construction of a

citywide education-industry consortium, enabling them to better engage in new practices. First, constructing a service-oriented integration pathway is essential. A service orientation requires various levels and types of connectivity pathways, particularly through the establishment of corresponding platforms and mechanisms. Whether building new platforms and mechanisms or upgrading existing ones, the key lies in breaking the inertia of education-centric approaches. By starting from the realities and needs of enterprises and industries, service-oriented incentives and driving mechanisms can be established, thereby better aligning with the construction of a citywide education-industry consortium. Second, reforms in talent cultivation practices need to be deepened, with a focus on new spatial-temporal elements. The substantial operation of a citywide education-industry consortium creates meaningful shared structures and real-world contexts for deep integration between schools and enterprises. Simultaneously, it constructs spatial-temporal and practical scenarios for talent cultivation that differ from traditional school education. With significant changes in elements such as the spatial-temporal context of education, schools must intensify reforms in talent cultivation. Two major areas require attention. On the one hand, curriculum and teaching reforms need to make significant breakthroughs, efficiently integrating knowledge learning and practical experience to explore new methods and ideas for vocational education talent cultivation. In particular, educational entities should develop the capability to accurately identify the needs of subjects and scenarios and conduct educational or service practices based on the integration of these needs within specific contexts. On the other hand, there needs to be a sustained increase in the openness and reform of vocational education talent cultivation. Through comprehensive, process-wide reform deepening, micro-mechanisms of talent cultivation can be restructured, promoting the development of talent cultivation practices toward personalization, modularization, dynamism, and regionalization. This ensures that talent cultivation is closely integrated with regional development practices, helping break out of the isolating constraints of the ivory tower. Finally, the overall enhancement of regional service capabilities is crucial. The process of enhancing regional service capabilities essentially involves vocational colleges reshaping their unique characteristics and core competencies. Colleges need to re-optimize their resources and goals based on the local industrial economy and the actual conditions of enterprises, breaking the trend of homogenization through regional differentiation, thereby forming personalized and distinctive development goals and pathways.

Institutional reforms centered on the substantial operation of consortium

For vocational education, the "substance" of substantial operation can be understood on two levels. First, there is a tangible dimension, which includes stable funding, fixed office spaces, and dedicated personnel. Second, there is a sustainable real-world context and worksite that the operation of the education-industry consortium may provide for vocational education practices. Both aspects indicate a shift from a school-centered framework to new practical domains. This signifies an outward shift in the focal point of vocational education practice. To better adapt to this shift, vocational education must expedite its mechanisms and institutional reforms. The core of institutional reform lies in driving the decentralization of management through systemic mechanisms, restructuring the organizational functions of educational institutions, clarifying the functional roles and responsibilities of each part, and innovating working mechanisms. The direction of institutional reform should aim at promoting organizational openness, flattening hierarchies, and diversification; facilitating the gradual outward shift of resource allocation centers; improving the efficiency of educational micro-reforms and decision-making; and stimulating the formation of synergy around integrated practices among educational entities. In the deep integration of vocational education and industry, the quality of integration and service will increasingly be determined by the institutions and teachers and students at the practical forefront. To achieve the goals of consortium construction and vocational education reform and innovation, it is essential to establish mechanisms and institutions that effectively incentivize and mobilize the active participation of practitioners. This process of institutional reform is essentially an exploration of a new governance system.

Emphasizing the empowerment of digital transformation

Digital transformation is not merely an upgrade and reshaping of specific educational settings; it is a complex scheme aimed at breaking through physical space constraints to modernize institutional norms, educational order, organizational structures, and social relationships in practice.^[15] Digital transformation has a comprehensive empowering effect on the construction of citywide vocational education-industry integration systems. On the one hand, digital transformation is a practical challenge faced by both enterprises and educational institutions. Using digital transformation as a common support can more efficiently eliminate organizational barriers and optimize resource allocation. In particular, the establishment of shared digital platforms facilitates deep collaboration and helps transform fragmented, dispersed, and unstable collaborative

entities into systematic and stable relationships. On the other hand, high-quality service from schools to regional economic development and the practical needs of enterprises also necessitate smart platforms based on digital technologies. Therefore, vocational education needs to accelerate the construction of a comprehensive digital infrastructure for industry-education integration. Additionally, it is essential to enhance the openness and sharing of digital infrastructures with industrial enterprises to resolve barriers and organizational connectivity issues on both sides.

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