

Research on the Teaching Problems and Strategies of Data Journalism Courses in Local Universities under the Background of Industry-education Integration

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Abstract:

Industry-education integration is an important path for innovating the operation mode of higher education, improving the quality of talent cultivation, and promoting the transformation of scientific research achievements. For local universities' journalism programs, conducting practical teaching is a key task for cultivating high-quality talents. As a core course in journalism, data journalism aims to cultivate students' abilities to effectively obtain, scientifically analyze, and visually present data, guiding them to build correct data journalism literacy and data thinking. However, local universities generally face multiple resource constraints and practical problems in the process of implementing journalism talent cultivation. Therefore, local universities need to accurately grasp the new requirements for data journalism talent cultivation, adhere to the industry-education integration education mechanism, effectively integrate internal and external educational resources, reconstruct the online and offline integrated teaching model, and drive teaching practice innovation through discipline competitions. At the same time, they should focus on social demand orientation and deepen collaborative cooperation with local media, ultimately achieving the goal of cultivating compound journalism professionals with contemporary adaptability.

Keywords:

Integration of Industry and Education, Local Universities, Data Journalism

1. Introduction

The evolution of big data technology has given rise to a new form of news reporting - data journalism. As a news reporting paradigm, data journalism is based on the collection, processing, analysis, statistics, and visualization presentation of data. The exploration of this field has become a new territory in journalism and has had a reconfiguration effect on the traditional news production process. Data journalism essentially represents an innovation in the concept of news value and the dimension of expression, providing a new perspective for traditional reporting and giving news

more solid data support. At the same time, it relies on multiple communication channels and multi-dimensional narrative models to promote news reporting to stand at the forefront of the times. The vigorous development of data journalism has raised higher requirements for the journalism education system. Currently, many journalism departments have added related courses, but due to the relatively late start of data journalism education, there are still many constraints on teaching quality and talent cultivation. For local universities, it is urgent to solve the current problems in data journalism teaching and construct a new teaching model and system that is in line with local development needs, and focus on cultivating interdisciplinary and comprehensive news talents serving regional development. The core mission of local universities lies in serving local or regional talent cultivation, so it is necessary to carefully consider how to integrate educational resources, talent cultivation goals, and local development needs. This article aims to explore the existing problems and optimization strategies in the transformation of theory and practice in data journalism teaching in local universities, in order to improve the teaching effectiveness of this major.

2. Theoretical Foundation and Technical Framework

Under the strategic background of deepening the integration of industry and education, the teaching reform of data journalism in local colleges and universities urgently needs to build a solid theoretical foundation and an innovative technical framework. [1] Data journalism, as a cutting-edge direction in the field of news communication, its teaching is confronted with the dual challenges of rapid iteration of industrial demands and continuous evolution of the technological ecosystem. This section systematically expounds the theoretical basis and practical path of data journalism teaching reform from three dimensions: the collaborative theoretical framework of industry-education integration, the core capabilities of data journalism education, and the teaching support system empowered by technology, providing a systematic solution to solve the current teaching predicament.

2.1. Collaborative Theoretical Framework of Industry-Education Integration

The integration of industry and education is essentially a deep collaborative process in which the education and industry systems move from "mechanical superposition" to "organic symbiosis". Its theoretical basis is rooted in the system coupling theory and the stakeholder theory, emphasizing the organic connection of the education chain, talent chain, industrial chain and innovation chain through mechanism design and resource reconstruction. At the practical level, this collaborative framework consists of three key dimensions: the policy coordination mechanism, that is, the government integrates educational policies and industrial policies through cross-departmental coordination; The resource integration paradigm, namely the integration of industry and education, requires breaking the resource boundaries between schools and enterprises, achieving the dynamic flow and optimal allocation of educational resources and industrial resources, enabling the synchronous evolution of teaching resources and industrial technologies, and solving the chronic problem that teaching content lags behind industrial development. The benefit symbiosis model, that is, the sustainability of industry-education integration depends on the balance of the interests and demands of schools and enterprises, transforms employers from "passive cooperators" to "active co-builders", forming a symbiotic ecosystem where risks are shared and benefits are shared. [2]

2.2. Core Competence Framework of Data Journalism Education

Data journalism, as an emerging field formed by the intersection of journalism and communication and data science, requires the construction of an interdisciplinary ability model for talent cultivation. Based on the concept of integrating industry and education, the ability structure of data journalism talents should include three dimensions: data thinking, news literacy and technical ability, forming a "trinity" composite ability framework. Data thinking emphasizes a systematic way of thinking that uses data to understand social phenomena, discover news leads and conduct in-depth interpretations, and requires practitioners to possess data critical thinking ability and social interpretation ability. News literacy emphasizes narrative innovation ability and ethical judgment ability. Technical capabilities emphasize that local universities need to focus on cultivating students' mastery of technical tools, including data acquisition and processing, data analysis and visualization, and intelligent communication tools.

3. Analysis of Practical Problems in Data Journalism Teaching in Local Colleges and Universities

The resources available to universities in different regions and types in data journalism teaching vary greatly, resulting in many difficulties faced by local universities in data journalism teaching.

3.1. The student source structure is monotonous and lacks a foundation for interdisciplinary learning

This course is usually designed for third-year undergraduate students majoring in journalism, requiring them to have a solid foundation in journalism theory, reporting and writing skills, as well as data analysis skills. Prerequisite courses such as news interviewing and writing, communication statistics, Digital Media Technology and New Media Data analysis have been completed during the first and second years of study, laying a certain foundation for learning. However, among the students majoring in journalism and communication, those with a background in humanities and social sciences account for a relatively high proportion. Their knowledge reserves in fields such as computer technology, data analysis methods, and art design are generally insufficient, resulting in significant learning obstacles for most students in the core contents of courses such as data collection, analysis, and visualization, making it difficult to meet the core literacy requirements of compound data journalism talents. Moreover, this course is usually set for only one semester (about 36 class hours), with limited learning depth. [3] As a result, most students only remain at the theoretical cognition level and find it difficult to carry out autonomous practical operations in combination with specific news topics.

3.2. The teaching staff is limited and the teaching resources are relatively scarce

Compared with well-known domestic universities, there is a relatively scarce teaching team in local colleges and universities that is competent for the comprehensive teaching ability of the data journalism course. This course requires the integration of diverse skills such as news writing, computational social sciences, statistical modeling, visual aesthetics and graphic processing. Teachers of traditional journalism usually have difficulty possessing the above-mentioned interdisciplinary compound background.[4] Although some institutions have set up relevant elective

courses, teachers who truly possess dual expertise in journalism and communication as well as technical practice are extremely rare, and there is a gap in the depth of technical integration. To ensure the smooth operation of teaching, some institutions adopt the approach of multi-disciplinary teacher collaboration or temporarily hiring industry personnel from outside. This makes it difficult to guarantee the stability of teaching quality and is not conducive to the continuity of talent cultivation. Meanwhile, although students can access open educational resources through platforms such as China University MOOC and Xuetangx, these resources focus more on theoretical instruction and generally lack practical operational guidance on key technologies (such as Python, R language data processing, Tableau/Flourish visualization tools).

Furthermore, due to the limitation of operating funds, the input of practical teaching resources in local colleges and universities is unbalanced. Most institutions lack dedicated funds to allocate on-campus and off-campus practice platforms or establish specialized data journalism laboratories and workshops. The long-term absence of professional-level data mining tools, processing software and supporting hardware has made the practical teaching links merely formalities. Students can only acquire basic theories, and their technical practical operation abilities are difficult to be effectively improved.

3.3. The discipline construction lags behind and lacks market adaptability

At present, most local colleges and universities still follow the traditional journalism curriculum system with reporting, writing, editing and evaluation as the core. Data journalism courses are also mostly taught within this framework, lacking in-depth design for the integration of interdisciplinary knowledge and technology. At the same time, there is insufficient judgment on the development trend of converged media and a lack of systematic transformation planning. This leads to its curriculum system and talent output being difficult to meet the current demands of the news industry for technology-enabled content production.

Although some studies suggest bridging the gap between talent cultivation and market demand by deepening school-enterprise cooperation, there is considerable resistance at the practical operation level. There are few opportunities for cooperation between top domestic news agencies (such as Xinhuanet, The Paper, Caixin, People's Daily Online, etc.) and local universities. Only a few leading institutions (such as Communication University of China, Tsinghua University, Peking University, etc.) can establish regular cooperation mechanisms. This structural gap makes it difficult for local universities to effectively connect with the cutting-edge of industries, hindering the precision of their teaching optimization and talent cultivation.

4. Research on Teaching Practice Strategies of Data Journalism in Local Colleges and Universities

4.1. Innovate the way of cultivating interdisciplinary talents and build a compound teaching staff team

The enrollment of journalism majors in local colleges and universities in China should break the traditional enrollment model mainly based on liberal arts and increase the proportion of science and engineering enrollment. This is conducive to the cross-disciplinary cultivation of students in the field of journalism and

communication in terms of liberal arts and science. In terms of discipline setting, local colleges and universities can innovate the way of cultivating interdisciplinary talents and introduce a dual-degree training mechanism of journalism and communication and computer science. Local colleges and universities should optimize the curriculum system, adhere to the horizontal integration across disciplines, majors and departments, increase the proportion of courses such as literature, history, philosophy and computational social sciences in the curriculum setting, respect the individual development of students, encourage students to choose courses they like across majors, cultivate students' innovative consciousness, innovative thinking and innovative ability, and continuously improve students' comprehensive quality.[5]

Local colleges and universities should strengthen the construction of compound teaching teams, pay attention to activating the existing stock of teaching resources in colleges and universities, gather teachers from different disciplines to form a data journalism teaching team, and transform from the previous single-discipline teaching team to a multi-discipline and multi-level teaching team. On the one hand, local universities should establish a flexible mechanism for attracting talents. We should introduce more industry teachers. By inviting industry experts to give lectures, selecting industry mentors or setting up on-campus programs for journalists, we can attract industry elites to participate in the process of data journalism talent cultivation. On the other hand, local universities should create conditions to recommend their teachers to participate in domestic and international academic conferences on data journalism, or utilize online platforms to adopt new media teaching methods such as jointly developing MOOCs or live streaming on the Internet. They should also collaborate with renowned university teachers on data journalism teaching cooperation and exchanges, strengthen the connection between university teachers and other universities as well as media enterprises, and encourage horizontal cooperation. Promote the transformation of teaching achievements.

4.2. Integrate educational resources and reconstruct teaching models by leveraging both online and offline resources

Local colleges and universities should focus on the teaching system of data journalism, fully integrate and utilize the teaching resources within the school, set up the courses required for data journalism according to the professional demands, strengthen the cooperation among departments, resolve the contradiction between professional demands and teaching staff, and comprehensively share teaching resources. Based on the existing online learning resources, teachers should combine online learning when conducting offline teaching and actively explore the reform of the data journalism teaching mode. On the one hand, reconstruct the curriculum system based on the characteristics of the student source. According to the cognitive laws and knowledge backgrounds of students, re-plan the course knowledge matrix of data journalism, clarify the key and difficult points of knowledge, rationally divide online and offline learning resources, and gradually enhance students' creative ability in data journalism. On the other hand, by introducing excellent online course resources and organically integrating online teaching resources with offline teaching discussions, a teaching model that combines "online self-study + classroom discussion + laboratory practice" is created. Discussions and learning are advanced layer by layer, completely changing the traditional teaching method of "full lecture", allowing students to learn while doing and do while learning. Take the initiative to study online courses with questions in mind to deepen students' understanding of knowledge points.

Reconstructing the teaching mode by utilizing online and offline resources can change the traditional and single classroom teaching mode of local colleges and universities, gradually carry out the student-centered exploration mode, stimulate and exercise students' practical operation ability, and at the same time make up for the shortage of teachers in local colleges and universities in the short term and solve the contradiction between teachers and professional demands.

4.3. Drive teaching through subject competitions to enhance the quality of data journalism talent cultivation

Local colleges and universities should leverage the advantages of integrating competitions and teaching, create a favorable learning atmosphere, promote learning, improvement, teaching and construction through competitions, and continuously enhance students' comprehensive skills in data journalism. Promoting learning through competitions means that local colleges and universities exercise students' ability to select data journalism topics, capture high-quality data, and analyze data through discipline competitions in data journalism, and improve the creative level of students' data journalism works. Promote reform through competitions, that is, local colleges and universities should drive the reform of data journalism teaching with discipline competitions, promote the transformation of practical teaching concepts and the improvement of teaching conditions, and promote the transformation from traditional journalism practice models to new media practice models. Promoting teaching through competitions means that local colleges and universities should explore innovations in teaching forms, teaching contents, teaching systems, etc. Oriented by the demands of the industry, they should achieve the reconstruction of the teaching process of data journalism. Promoting construction through competitions means that local universities should take subject competitions as an opportunity to actively establish data journalism studios and practical training platforms, and invite well-known domestic teachers and industry experts to give lectures on campus to deepen students' understanding and recognition of data journalism. Driving data journalism teaching through subject competitions can not only enable the data journalism research in local universities to keep up with the industry trends and give full play to the advantages of integrating competitions and teaching, but also contribute to the advancement of data journalism teaching and the further improvement of students' practical abilities.

4.4. Focus on social needs and strengthen cooperation with local media

Data journalism education in local colleges and universities should start from reality, combine the actual situation of the major and the demand for talents in the job market, highlight practicality, focus on social needs, and actively expand service functions. The idea of integrating industry and education lies in having such an integrated platform that can apply scientifically allocated rich resources to enterprise production, school teaching and research, which not only ensures the high-quality talent supply of enterprises, but also provides a direction for the development of practical teaching in schools. Against this backdrop, the journalism and communication major can establish a practical training platform and set up a dedicated data journalism operation team. Led by professional teachers, students can form a complete chain of data journalism reporting, writing, operation and promotion, taking full responsibility from reporting and writing to promotion. This enables students to integrate into the real

media environment, driven by demand, truly master professional skills and enhance practical abilities. Cultivate professional qualities. [6]

First of all, local universities can establish a university research model that conforms to local characteristics and is conducive to integrated development. Relying on research projects, they can promote the internal connection between local university research and new media affairs. Secondly, local universities and local media can carry out all-round cooperation to cultivate “dual-qualified” teachers, establish a personnel mutual employment system that conforms to local characteristics and is conducive to local economic development, and promote talent exchange between universities and media. Finally, local colleges and universities can select outstanding local media companies as internship bases for students, hire experienced media professionals as external teachers, set scientific and feasible teaching goals, add flexible practical course modules, and take the demands of the new media market as the orientation to cultivate more “order-based” outstanding graduates for the media industry.

5. Conclusions

In conclusion, the training of data journalism talents in local universities in China is currently in its infancy. Local universities still encounter many difficulties and problems in the teaching of data journalism. The integration of industry and education provides a new opportunity for the development of practical teaching in data journalism for journalism and communication majors in local universities. The development of practical teaching can effectively enhance the professional skills and innovation capabilities of journalism and communication students, provide a guarantee for the supply of high-quality talents for local media industries, promote the development of local industrial economy, and at the same time, deepen the integration of school-enterprise industry education and improve the quality of talent cultivation in universities.

Under the trend of interdisciplinary integration of disciplines, local university journalism departments should seize the opportunity of teaching reform, introduce social forces to carry out joint teaching, implement project-based and modularized layered teaching models, and promote the unification of the pace of university education and social production. How to cultivate data journalism talents that meet the requirements of the big data era is a problem that local university journalism departments must seriously consider during the educational transformation process.

Conflicts of Interest

The author declares that there is no conflict of interest regarding the publication of this article.

Author Contributions

Conceptualization: Mengyu Kang; Methodology: Mengyu Kang; Validation: Xiaoxian Su; Formal analysis: Taotao Chao; Investigation: Taotao Chao; Resources: Mengyu Kang; Data Curation: Mengyu Kang; Writing – original draft preparation: Mengyu Kang; Writing – review and editing: Xiaoxian Su; Visualization: Mengyu Kang.

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References

- [1] Sun, A. Industry-university collaboration: An innovative path for cultivating practice-integrated journalism talents. *Media*, 2020, (7),81-83.
- [2] Chen, J.; Yang, L. Interpretation and reference of data journalism teaching at Columbia Journalism School. *Journalism Bimonthly*, 2021, 126-133, 152.
- [3] Yang, S. Exploration of online-offline blended teaching path for the “Data Journalism” course under the background of new liberal arts. *Media Forum*, 2022, 17(6), 73-76.
- [4] Wang, Y.; Duan, W. Research on the dilemmas and pathways of data journalism talent cultivation in local undergraduate universities in the media convergence era. *Editing and Reporting*, 2022, 173-174.
- [5] Yang, C.; Jie, Q. Preliminary exploration of “Need-Research-Teaching Integrated” journalism talent cultivation in local universities under university-media cooperation. *Southeast Communication*, 2020, 10, 132-133.
- [6] He, X. Development and dilemmas of practical teaching in network news and communication majors under the media convergence environment. *Communication and Copyright*, 2021, 8, 97-99.



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