Official Authority and Folk Resonance: A Differentiated Association Study of Sci-Tech Discourse Communication and University Students' National Identity

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Abstract: Scientific and technological capability has become the core of competition between nations. This raises an important problem: how sci-tech messages spread and shape young people's national belonging. This topic holds value for both theory and real-world practice. This study uses a conceptual framework that connects discourse trust with different layers of national identity. It collects data from a survey which covers 690 college students. The research checks two things. First, it examines how state-released and grassroots sci-tech content reaches these students. Second, it explores how each type of content relates to the three layers of national identity. The analysis brings three clear findings to light. Students receive sci-tech information from two separate channels, which are official sources and informal folk sources. Even so, students trust official messages far more than folk ones. Trust in official sci-tech content has a strong positive link with cognitive, emotional and behavioral national identity, which means it can predict these identity outcomes statistically. Trust in folk content shows only a slight positive raw correlation at first. Yet this independent link disappears once we account for official trust and background features of participants. When students face cross-cultural communication contexts, they believe false overseas views about China are common. However, they seldom look up related facts on their own or reply actively to these misunderstandings. The coping ways that they adopt are limited and cautious. Quite a number of young people choose not to get involved in such debates at all. They also think official narratives lack strength when explaining ideas to foreign audiences, while folk content cannot guarantee that it will reach viewers abroad. These findings offer an empirical point of reference for the link between sci-tech discourse and national identity and for sharpening how sci-tech discourse is communicated. These findings offer an empirical point of reference for the link between sci-tech discourse and national identity and for sharpening how sci-tech discourse is communicated.

Keywords: Sci-Tech Discourse; National Identity; Official Discourse; Folk Discourse; University Students

1. Introduction

Scientific and technological capability has come to be read as the core yardstick of a country's comprehensive national strength, against a backdrop of change unseen in a century. From the Chang'e lunar exploration to the Tianwen Mars mission, and from 5G standards to the global race over large artificial-intelligence models, each unveiling of a Chinese sci-tech achievement does more than display hard technological power; it also works as a discursive practice, telling the world a story about an "innovative China" while signaling something to domestic citizens about national capability and future prospects. For today's university students, who grew up amid an information explosion, this kind of discourse becomes a key window onto the nation and the times they live in. However, the objective existence of technological achievements will not automatically translate into the national identity of young people. This transformation must be achieved through effective dissemination and the way the audience themselves construct meaning.

For a long time, ethnic identity has been mainly studied through ideological political education, traditional culture and historical narratives. However, the emerging technological discourse, as an identity resource, has failed to receive the

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necessary theoretical attention. A few studies that link science and technology with ethnic identity often treat "scientific and technological achievements" as a general background variable, ignoring a key issue: how are these achievements presented, disseminated and interpreted through specific discourse forms? When an official white paper, delivered in measured prose, sits alongside a lively popular-science video made by a Bilibili creator, do both shape identity in the same way? When foreign media question or misunderstand China's achievements, how should the students understand and respond? These questions point to a gap that has gone largely unnoticed: the communication process of sci-tech discourse is closely tied to how national identity takes shape. Working from a "discourse trust–dimensions of national identity" conceptual framework, and combining a questionnaire of 690 university students with open-ended responses, this research takes up three questions. To begin with, what do students' overall exposure patterns to Chinese sci-tech discourse look like, and how do they weigh official authoritative releases against folk popular-science content? Beyond exposure, what kinds of association patterns do official and folk discourse trust show with each dimension of national identity? Finally, treated as exploratory, what difficulties appear in students' discursive response when they meet misunderstanding and challenge in cross-cultural communication? These questions are designed to provide solid empirical evidence for the research on the dissemination of technology and national identity, and to offer practical and feasible references for government agencies and universities that aim to optimize their discourse strategies regarding technology and improve the guidance of young people's thoughts.

2. Literature Review and Research Hypotheses

2.1 Sci-Tech Discourse: From Apparatus of Power to Contest over Meaning

"Discourse" has long transcended its role as merely a linguistic tool; in constructivist social thought, it has become a core mechanism for shaping reality and distributing power. Foucault [1] regarded language as a combination of power and knowledge, regulating thoughts and actions by defining what can be said, the mode of expression, and who can speak. Based on this logic, technological discourse is far from being an objective statement of technical parameters; rather, it is a political text that embodies the will of the state and the narrative of development. Van Dijk's [2] sociocognitive theory adds that discourse builds or dismantles social consensus by working on the mental models of individuals and groups. This gives a useful theoretical entry point for the link between sci-tech discourse and national identity: when the state releases achievements and explains strategy via official channels in a systematic way, it in effect sets cognitive boundaries for the public via a master narrative; when folk self-media interpret sci-tech issues in accessible, entertaining ways, they may reproduce, renegotiate, or even challenge that narrative.

Chinese scholars have in recent years begun to look at the narrative strategies and ideological functions of sci-tech communication [3], yet most of this work sits inside communication studies or science popularization and rarely links directly to national identity as a political-psychological construct. An important study, based on the survey data of Chinese netizens' social ideology in 2022, constructed the framework of "media trust - perception of national capacity - national identity", and explored the formation mechanism of young people's national identity in the dual-track media ecosystem [4]; The study found that the trust gap between official and non-official communicators is of great significance for identity construction. In international communication, Yang et al. pulled China's scientific image on international social media from Twitter data and brought out the cognitive gap and discursive dilemma that image faces across cultural contexts [5]; Zhao et al. combined news data from 24 countries with survey data and showed that different framing produces complex effects on public cognition—positive framing strengthens endorsement, while negative framing, though it raises vigilance, also makes China's sci-tech capability more visible [6]. Related empirical work on sci-tech communication and identity, and on media use and identity, is equally relevant: Jia et al. read short-video comments and found that news communication of major achievements can effectively arouse civic national identity [7]; Ju analyzed Chinese and foreign coverage of the "sci-tech Winter

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Olympics" and examined how sci-tech news builds national identity [8]; Liu et al., drawing on netizen social-consciousness surveys, found that traditional and new media use carry different effects on youth national identity [9]; Ji and Xiao showed using the World Values Survey that media contact enters political trust by way of institutional performance and sociocultural integration [10]; Xu and Li, on CSS2021 data, reported that internet use affects residents' national identity via intergroup contact [11]. These studies offer preliminary empirical clues about the identity effects of the official–folk dual discourse structure, although they do not yet test, in a systematic way, how trust in the two types of discourse separately relates to each identity dimension in the Chinese context. This theoretical gap prompted the initiation of this research.

It should be noted that there are more than two constructive forces contained within the discourse field. When discussing power and knowledge, Foucault [1] also pointed out that every dominant discourse may give rise to counter-discourses - that is, expressions that challenge, question, and deconstruct the mainstream narrative. The same pattern appears in today's Chinese social media, where skeptical, critical, even ironic discourse about achievements exists—for instance talk of "reinventing the wheel," "inflated technical specs," and "unsolved bottleneck problems." Such negative discourse need not come from hostile forces; it may grow out of the public's rational questioning of input-output ratios or concern over technical ethics. Most existing research concentrates on positive or neutral sci-tech communication and pays too little attention to how this skeptical discourse ties to youth national identity. Because this paper focuses on the differentiated association of official and folk constructive discourse, skeptical discourse is left out of the empirical model and only raised as a future direction in the discussion.

2.2 The Cognitive–Emotional–Behavioral Model of National identity

National identity describes an individual's emotional belonging to and cognitive evaluation of the country [12], usually operationalized as cognitive identity (rational endorsement of national achievements, institutions, and values), emotional identity (pride, attachment, and similar feelings toward the nation), and behavioral identity (willingness to act in defense of national image and interests). Existing studies show that major national achievements—hosting the Olympics, launching a manned spacecraft, for instance—can raise civic national pride markedly and in turn strengthen identity [13]. Most, however, treat "achievement" as a self-evident fact and pass over the discursive process: how achievements are narrated, given meaning, and channeled into specific media. Fan et al.'s cognitive–emotional–behavioral-intention model offers a direct methodological reference: by focusing on comments under sci-tech videos, they capture identity expression at all three levels at once and confirm that the three can be observed and told apart within a single communication setting [14]. Li et al. go further, explaining from informational features and cognitive tendency how "discourse packaging" turns into pride, and identifying empathy arousal, group belonging, and rational appraisal as the links between achievement communication and national pride [15]. Rich evidence has also accumulated on how university students' identity forms: Yu et al. lay out intergenerational transmission along with the roles of psychological-need satisfaction and psychological capital [16]; Yang and Peng, on a national survey, find that government governance performance raises youth identity via political trust [17]; Chen and Song trace the emotional dynamics of youth identification with national image via danmaku sentiment curves [18].

Landmark achievements such as the Jiuzhang quantum computer do not explain their own meaning to every audience.Before they enter people's cognition and emotions from the professional technical field, they must be packaged in the form of discourse and thus enter the public domain. Therefore, introducing the dissemination form of technological discourse into identity research has opened up an analytical perspective that is different from previous studies. It should be clearly pointed out that this study only explores the correlation between discourse trust and the identity dimension, and has not examined the mediating path between cognition, emotion and behavior.

2.3 Official and Folk Discourse: Different Paths of Persuasion

The two basic paths of information reception

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were proposed by the "Interpretation Possibility Model" (ELM) [19]. When the audience has both the ability and the motivation, they will choose the central path and conduct in-depth and rational processing; otherwise, they will opt for the alternative path and make quick judgments based on cues such as the credibility of the source and emotional experience. The citation of ELM here is merely as an analytical perspective; the specific processing paths of the audience have not been directly measured. Official discourse centers on policy interpretation and achievement announcements, being highly authoritative but with low affinity, and mainly reinforces identity recognition through cognitive assessment (central path). The folk discourse focuses on public interpretation and opinion exchange, having strong emotional stimulation but low guarantee, and mainly promotes identity construction through emotional resonance (peripheral path). Accordingly, the present paper proposes the following hypotheses:

H1: We test the paired sample. Students show higher trust in official sci-tech messages. This trust level is much higher than their trust in folk sci-tech messages.

H2a: When students trust official sci-tech messages, they score higher on cognitive national identity. This kind of identity includes recognizing the value of independent innovation in science and technology.

H2b: When students trust official sci-tech messages, they score higher on emotional national identity. This feeling mainly refers to pride in their country.

H2c: When students trust official sci-tech messages, they score higher on behavioral national identity. It means they are ready to share related positive information on their own.

H3: We set the trust of official sci-tech messages as a controlled variable. Under this condition, trust in folk sci-tech messages can still link to emotional national identity and behavioral national identity in a positive way.

3. Research Design

3.1 Data Source and Sample Characteristics

This study is primarily a quantitative research. The open-ended questions are merely used as supplementary background for the quantitative results and do not constitute an independent qualitative research design. The quantitative data come from the questionnaire survey titled "The Dissemination of Chinese Scientific and Technological Discourse and the Construction of College Students' 'National Identity'". This questionnaire was distributed to students from multiple universities through online convenience sampling from November 2025 to April 2026. A total of 690 valid questionnaires were collected. This paired sample included respondents who had both been exposed to official technological discourse and answered two trust projects (official and non-official), totaling 198 cases, which were used to compare the differences between official trust and non-official trust. After incorporating the core variables and control variables into the regression model, the listwise deletion method retained 194 valid cases; missing values were handled through listwise deletion, but this method may introduce a certain degree of selection bias, so the results should be interpreted with caution. Distribution covered comprehensive, engineering, normal, and other institution types, giving the sample some heterogeneity. Among respondents, 198 (28.7%) were male and 492 (71.3%) female; school type was led by engineering (333, 48.3%) and comprehensive (148, 21.4%), followed by medical 54 (7.8%), finance/economics 50 (7.2%), language 39 (5.7%), arts 28 (4.1%), normal 26 (3.8%), agriculture/forestry 11 (1.6%), and physical education 1 (0.1%); grade ran from freshman to senior-and-above (freshman 38.7%, sophomore 40.0%, junior 14.6%, senior-and-above 6.7%). The questionnaire collected demographics (gender, school type, grade, sci-tech-related experience) and core variables (exposure preference, trust, emotional reaction, identity level, cross-cultural perceptions). The gender, school-type, and grade proportions were computed by SPSS 26.0 with the 690 valid questionnaires as the denominator (see Figure 1); because some core variables are missing, later regression uses listwise deletion, and effective sample sizes are noted separately in each table and figure note (e.g., n=194) rather than substituting the 690 descriptive sample for the regression sample.

Alongside the quantitative data, two open-ended items—“What do you see as the greatest communication difference between official and folk sci-tech discourse?” and “What suggestions do you have for improving the cross-cultural communication of sci-tech discourse?”—

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yielded several hundred valid text responses that help contextualize the quantitative results. Quotations below come from these two items and carry the respondent's return-order number (#XX) for traceability. (Source: open-ended items among the 690 valid questionnaires.)

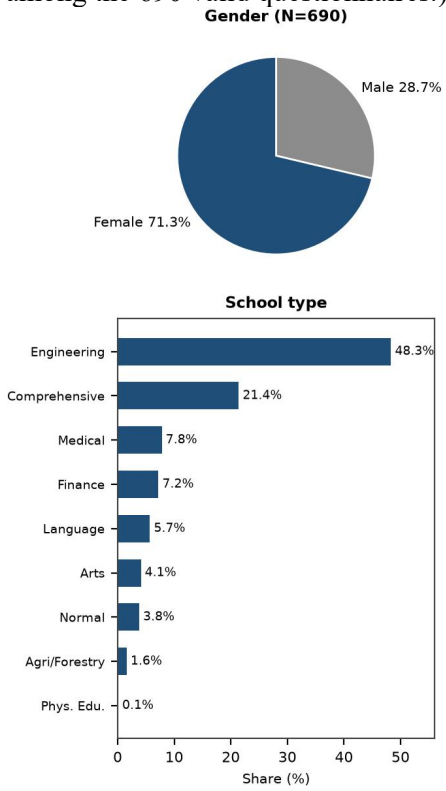

Figure 1. Sample Gender and School-Type Composition (N=690)

Note: Engineering 333 (48.3%), Comprehensive 148 (21.4%), Medical 54 (7.8%), Finance/Economics 50 (7.2%), Language 39 (5.7%), Arts 28 (4.1%), Normal 26 (3.8%), Agriculture/Forestry 11 (1.6%), Physical Education 1 (0.1%); Totals 690 (100.0%); Rounding may Cause a 0.1-Percentage-Point Discrepancy.

3.2 Variable Measurement

Dependent variable—national identity. Following established scales, identity is measured at three levels: cognitive identity through items such as "I endorse China's strategy of scientific self-reliance and self-improvement"; emotional identity through items such as "I feel proud of Chinese achievements in aerospace, AI, and other fields"; and behavioral identity through items such as "When others misunderstand China's sci-tech development, I proactively explain." Every item uses a 5-point Likert scale (1=strongly disagree, 5=strongly agree). A measurement point deserves note: cognitive, emotional, and behavioral identity each rest on a single item (single-item indicators), and official/folk discourse trust are likewise single-item ratings; single-item measurement cannot estimate Cronbach's alpha, and no confirmatory factor analysis (CFA) was conducted, so structural validity of the scales is limited. An unrotated Harman single-factor test gave a first-factor variance explained of 76.8%, a value that points to some common-method bias; correlation and regression results should therefore be interpreted cautiously.

Core independent variables: Official discourse trust (degree of trust in official technological content, on a scale of 1 to 5), Public discourse favorability (degree of trust in public technological content, on a scale of 1 to 5), Frequency of exposure to technological discourse (multiple-choice question on whether one has accessed official and public communication channels), and Access channels. Control variables: gender, grade, school type, and sci-tech-related experience.

3.3 Analytical Method

Quantitative analysis was conducted using SPSS 26.0. Descriptive statistics and cross-tabulations first depicted the students' exposure to technological discourse; Pearson correlation then examined the strength of the correlations among the variables; finally, multiple linear regression analysis was used to investigate the independent associations (statistical prediction) of official and folk discourse trust on different identity dimensions (controlling for demographic factors). Open-ended questions only provided supplementary background information and representative quotations, and did not constitute a formal qualitative text analysis. Anonymous questionnaires were collected through informed consent, and the data were used solely for academic research. Unless noted otherwise, statistics rest on the following analysis samples: descriptive statistics (percentages, means, standard deviations) use 690 valid questionnaires; the paired comparison of official and folk trust uses the 198 paired cases answering both items; core regression, after listwise deletion for missing core variables, uses 194 cases. Each table and figure note marks its own analysis sample. A point to emphasize: this is a cross-sectional survey measuring variables at one time point;

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"prediction" in the regression refers only to statistical prediction (partial regression coefficients and R-squared) on the current sample, it cannot be read as official trust causing higher identity, and it offers no causal-direction inference.

4. Empirical Results and Analysis

4.1 Overall Profile of Students' Exposure to Sci-Tech Discourse

High exposure and a parallel dual track.

The survey found that the great majority of students had encountered Chinese sci-tech discourse. On the multi-select item "Have you encountered the following sci-tech discourse carriers?", 70.4% chose "folk carriers (Bilibili videos, Zhihu analysis posts, social-platform topics)," 44.3% chose "official carriers (white papers, promotional films, briefings)," and only 17.4% reached neither. Among access channels, social media (65.5%) came first, followed by mainstream media (61.6%) and campus lectures/courses (57.1%). The pattern confirms that students receive information in a highly decentralized way, with official and folk discourse together forming the public sphere through which they understand sci-tech China (Figure 2). (Source: 690 valid questionnaires, SPSS 26.0; carrier and channel items are multi-select, so shares may exceed 100%.)

Trust divergence: official advantage, folk skepticism.

The two sets of numbers are arranged side by side, making the trust gap easy to read.On the 5-point scale, mean trust in official sci-tech content is 4.07 (SD=0.87), based on respondents answering the official item, while mean trust in folk sci-tech content is 3.54 (SD=0.72), based on those answering the folk item; the paired t-test was run only within the 198 respondents answering both items and shows a significant difference ($t=7.97$, $p<0.001$), supporting H1 (Figure 3). Many respondents put the divergence plainly: "Official is more authoritative; folk is easier to understand but also more likely to be unreliable" (#94); "Official carries authoritative endorsement; folk sometimes over-speculates and needs to be judged oneself" (#401). This systematic trust difference becomes the psychological basis on which the two discourses play distinct roles in identity construction. (Source: paired sample n=198, SPSS 26.0 paired t-test; bars show group descriptive means; quotations are from open-ended items, # being the return-order number.)

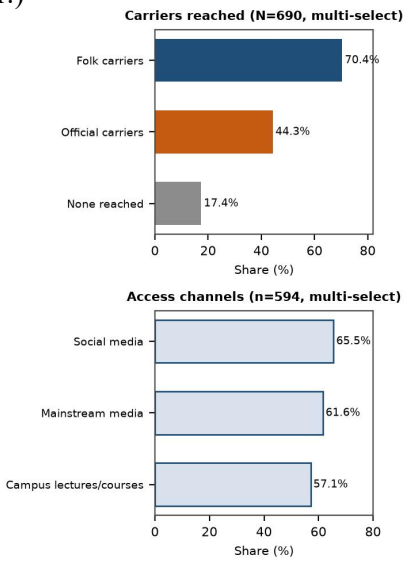

Figure 2. Reach of Sci-Tech Discourse Carriers (N=690, Multi - Select)

Emotional reaction: pride dominates, with concern alongside.

When asked about the main emotion on encountering Chinese sci-tech discourse, "pride/confidence" was chosen by the largest share, followed by "excitement/curiosity," a pattern showing that achievement communication does arouse positive affect effectively. Nevertheless, 13.3% of the respondents also selected "worry/ anxiety", focusing on issues such as technological ethics and international competition pressure. This emotional range goes far beyond "unconditional pride"; the appeal of technological discourse coexists with the cautious reflection of contemporary young people (Figure 4). (Source: 690 valid questionnaires, SPSS 26.0; the emotional items are multiple-choice questions.)

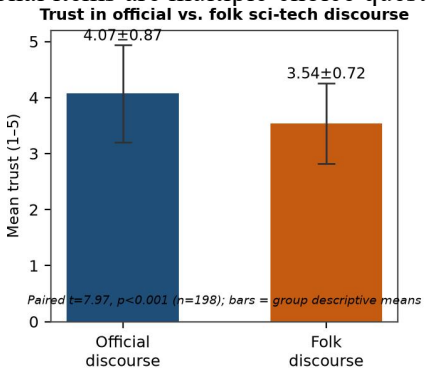

Figure 3. Trust in Official versus Folk Discourse (Bars = Group Descriptive Means; Official 4.07 +/-0.87, Folk 3.54 +/-0.72)

Note: Paired t-Test within the 198 Respondents

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Answering both Items, t=7.97, p<0.001.

4.2 Association Paths between Sci-Tech Discourse and National identity

1) Correlation analysis: Positive association between exposure and identity

Pearson correlation shows that the number of sci-tech carriers reached correlates weakly but positively with total identity score (r=0.09, p<0.05); official-discourse trust correlates moderately and positively with all three identity dimensions (r=0.25-0.30, p<0.001), whereas folk-discourse trust correlates more weakly with the dimensions (r=0.06-0.11), and only its correlation with emotional identity reaches significance (Figure 5). (Source: SPSS 26.0 Pearson correlation, N=690.)

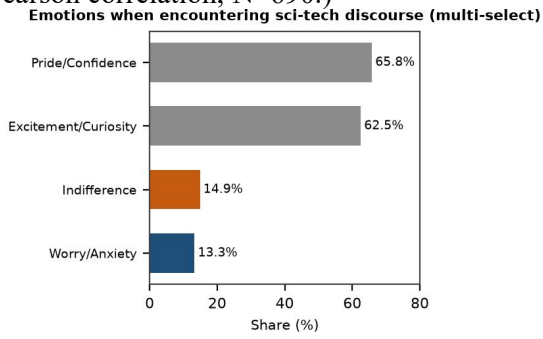

Figure 4. Emotional Reactions to Sci-Tech Discourse (Multi-Select)

2) Regression analysis: Divergence of the cognitive and emotional paths

To separate the distinct roles of official and folk discourse, cognitive, emotional, and behavioral identity were regressed on official- and folk-discourse trust while gender, grade, school type, and sci-tech experience were controlled, using hierarchical regression. Key standardized coefficients, R-squared, F, standard errors, 95% confidence intervals, and VIF appear in Table 1; standardized coefficients are shown in Figure 6, and overall identity-dimension scores in Figure 7.

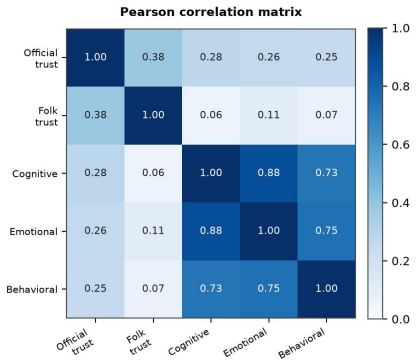

Figure 5. Trust and the Three Identity Dimensions: Pearson r

Note: Official Trust-Cognitive/Emotional/Behavioral = 0.28/0.26/0.25; Folk Trust-Cognitive/Emotional/Behavioral = 0.06/0.11/0.07; Official-Folk Trust Correlation Rests on the 198 Paired Cases (r=0.38); other Correlations Rest on Valid Samples for the Corresponding Items. Coefficients match the Text; Significance is as Reported in the Text.

Table 1. Regression of Official and Folk Discourse Trust on Three Identity Dimensions (Standardized Beta, n=194)

Identity dimension	Official trust beta	Folk trust beta
Cognitive identity	0.35***	-0.08 ns
Emotional identity	0.38***	-0.05 ns
Behavioral identity	0.32***	-0.02 ns

Note: standardized regression beta; ***p<0.001, ns = not significant (p>0.05). SE (95% CI): cognitive official 0.35 (0.075, [0.20, 0.49]), folk -0.08 (0.076, [-0.22, 0.08]); emotional official 0.38 (0.073, [0.24, 0.52]), folk -0.05 (0.074, [-0.18, 0.11]); behavioral official 0.32 (0.075, [0.17, 0.47]), folk -0.02 (0.076, [-0.17, 0.13]). Models control for gender, grade, school type, and sci-tech experience; effective analysis sample n=194 (listwise deletion). R-squared for cognitive/emotional/behavioral models = 0.128/0.167/0.117 (adjusted R-squared = 0.090/0.131/0.079); F = 3.39 (p=0.001)/4.63 (p<0.001)/3.06 (p=0.003); VIF for official and folk trust = 1.18 and 1.21, both below 1.5, indicating no marked multicollinearity. "Prediction" in cross-sectional regression is statistical prediction, not causation. (Source: SPSS 26.0 hierarchical regression, n=194.)

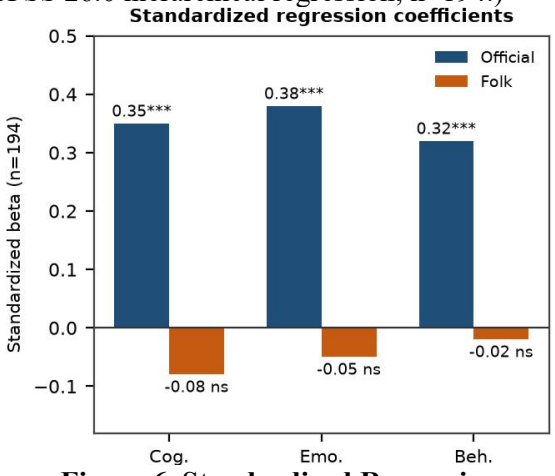

Figure 6. Standardized Regression Coefficients of Official and Folk Trust on the Three Identity Dimensions (beta, n=194)

Note: Folk-Trust Coefficients are Negative but not Significant (ns).

In the cognitive-identity model, the standardized coefficient for official trust is beta=0.35 ($p<0.001$), and that for folk trust is beta=-0.08 ($p>0.05$); official discourse carries a significant positive association with cognitive identity; folk trust, after official trust and demographics are controlled, shows no significant independent association (partial r=-0.08, $p>0.05$), a result that supports H2a.It is worth noting that the zero-order correlation between folk trust and perceived identity is a weak positive correlation ($r = 0.06$, $p > 0.05$), but once the variable of official trust is introduced, this relationship turns into a non-significant weak negative correlation. Because official and folk trust correlate only moderately (r=0.38) and VIF sits at 1.18-1.21 (both <1.5), strong multicollinearity is absent; this small sign change therefore should not be read directly as suppression. It more likely reflects sample fluctuation after official trust absorbs the shared variance between the two, and its mechanism awaits future testing. Official trust links significantly and positively to students' rational endorsement of propositions such as scientific self-reliance; the systematic, rigorous formulation of official discourse may give students a clear cognitive picture of national sci-tech strategy. One respondent wrote: "The official white papers and reports let me clearly know where China leads and where it is still catching up; that feels reassuring" (#99). (Source: SPSS 26.0 hierarchical regression controlling for gender, grade, school type, and sci-tech experience.)

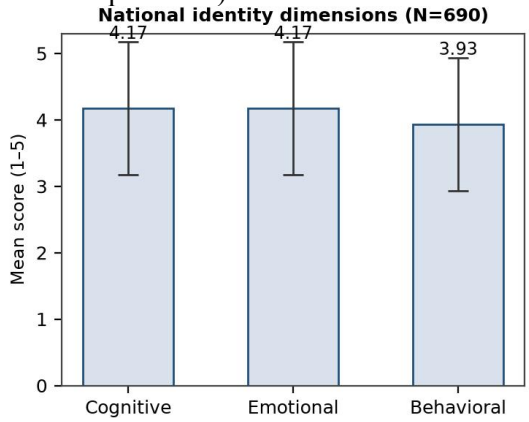

Figure 7. Scores on the Three Identity Dimensions (Cognitive 4.17, Emotional 4.17, Behavioral 3.93)

Note: Descriptive Statistics Rest on 690 Valid Questionnaires; Core Regression Uses n=194.

In the emotional-identity model, official trust is significant (beta=0.38, $p<0.001$) while folk trust is not (beta=-0.05, $p>0.05$); the behavioral-identity model shows the same pattern, with official trust significant (beta=0.32, $p<0.001$) and folk trust not (beta=-0.02, $p>0.05$). H3 therefore is not supported: folk trust holds only a weak zero-order correlation with emotional identity ($r=0.11$, $p<0.05$), and after official trust and demographics are controlled it shows no significant independent association with emotional identity (partial r=-0.06) or behavioral identity (partial r=-0.07); its intimate narrative still accompanies emotional arousal at the descriptive level. As a robustness check, demographic controls were dropped and only official trust was controlled; folk coefficients stayed non-significant and weakly negative (beta=-0.08/-0.05/-0.03), while official coefficients remained stable and reached the same conclusion. Folk discourse, with its vivid, intimate narrative, may more readily stir emotional swings: "Watching the Bilibili documentary short on FAST, the danmaku was full of 'tribute'; I couldn't help tearing up, and that sense of national pride welled up at once" (#72). Such arousal accompanies behavioral willingness descriptively, yet in this sample's regression it does not form an independent folk association; this runs against ELM's expectation that the folk peripheral route dominates affect, and may relate to folk discourse's own insufficient trust, though that route was not tested directly. On carrier preference for sharing, respondents favor official-carrier content (50.6%) over folk-carrier content (10.1%). (Source: SPSS 26.0 hierarchical regression controlling for gender, grade, school type, and sci-tech experience; sharing-carrier shares from the multi-select item, N=690.)

4.3 "Authority" and "Resonance": Functional Divergence of Official and Folk Discourse

The quantitative results give an overall picture: across the three regression models R-squared is 0.128/0.167/0.117 (adjusted 0.090/0.131/0.079), and official trust explains only about 12%-17% of identity variance; overall model explanatory power is limited, many individual and environmental factors go unaccounted for, so the results should not be overstated. Based on this, the official discourse and the folk discourse are not simply competitors in the process of identity construction; instead, they

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exhibit different functional patterns. The official discourse, leveraging its trust advantage, shows a significant and positive correlation with each of the identity dimensions in this sample; while the folk discourse does not display a significant independent correlation. Whether they are "complementary" should be regarded as an explanatory speculation to be verified in the future rather than a definite conclusion. The core advantage of the official discourse lies in "achieving cognitive anchoring through authority": it provides students with a stable and reliable information framework, preventing them from getting lost in the information flood, thereby possibly consolidating the foundation of the cognitive identity. Its drawback is that the expression is overly formal and has a high professional threshold - this combination may create a sense of distance: "The official discourse reads like a textbook, too rigid and difficult to approach" (#274). However, in this sample, the official discourse also shows a significant positive correlation with emotional and behavioral identities, so it is inappropriate to underestimate its appeal in these aspects merely because of its formal style.

The core strength of folk discourse lies in "the emotional resonance triggered by intimacy". It uses plain language, personal perspectives, and visual presentation to transform complex technologies into understandable stories and inspire people's sense of pride. However, its potential for independent identity construction is constrained by the lack of credibility: "Some self-media, in pursuit of traffic, deviate from the context and do not verify data, which is worrying" (#183). Nevertheless, after the official trust is controlled, folk discourse does not show obvious independence and distinctiveness, which might be one of the reasons for the relatively low credibility, but this article does not directly test the role of credibility as an intermediary path.

4.4 Extended Analysis: Discursive Difficulties in Cross-Cultural Communication

In addition to the main model, open-ended questions and descriptive data also expanded the scope of the research, exploring students' discourse cognition in cross-cultural contexts [5,6]; this part belongs to descriptive content and does not fall within the scope of the H1-H3 testing framework. Against the backdrop of globalization gradually weakening and the polarization of technological ideology intensifying, 62.8% of the students believed that "foreign publics have obvious misunderstandings about China's technological development", 24.3% expressed "uncertainty", and 12.9% thought "there is none" (Figure 8); after rounding, the total sum is 100.0%; this indicates that cross-cultural cognitive barriers have become a reality widely recognized by the youth group.This subjective perception sits against findings in recent international-communication research: Zhao et al., using data from 24 countries, show that global overall evaluation of Chinese technology is not low, although groups differ markedly across countries and framing effects vary by country; Yang et al., on Twitter, likewise note that China’s scientific image on international social media combines “recognition with doubt.” The “misconception” students perceive is therefore not pure subjective projection; it ties closely to the differentiated, frame-dependent nature of China’s sci-tech image across cultural contexts. This section offers supplementary exploratory description outside the H1-H3 framework, presenting the subjective structure of the difficulty through attribution and response-strategy preference; all shares are respondents’ subjective perception, not an objective measurement of overseas opinion. (Source: 690 valid questionnaires, SPSS 26.0.)

1). Prevalence of misconception and its attribution structure

A total of 601 respondents answered the multi-select attribution item (433 who perceived misconception and 168 who were unsure; those selecting “exists” or “unsure” were allowed to answer). The leading causes are: “selective coverage/smearing by foreign media” (74.4%), “Sino-foreign values and information-environment gap” (70.7%), “geopolitical rivalry” (65.4%), and “insufficient Chinese cross-cultural communication” (56.7%); fewer than 1% selected “other” (Figure 8). The attribution pattern shows a clear external-attribution preference: students tend to blame the external information environment and communication capacity rather than the sci-tech facts themselves. These are respondents’ subjective attributions reflecting cognitive tendency, not objective judgments of international communication; from a social-psychological view, such attribution partly

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forms the psychological basis of defensive identity—facing external challenge, the individual protects a positive image of self and group by externalizing responsibility. (Source: 690 valid questionnaires, SPSS 26.0; attribution item multi-select, n=601.)

More than half of the respondents also acknowledged that "insufficient cross-cultural communication in Chinese" was a significant factor - this indicates that students are not merely blaming external negative portrayals, but also maintaining a certain level of self-reflection on the flaws within their own discourse system. A typical response was: "Foreign media often distort the facts, but our communication methods are indeed rigid and not flexible enough, making it difficult for people to accept." (#156).

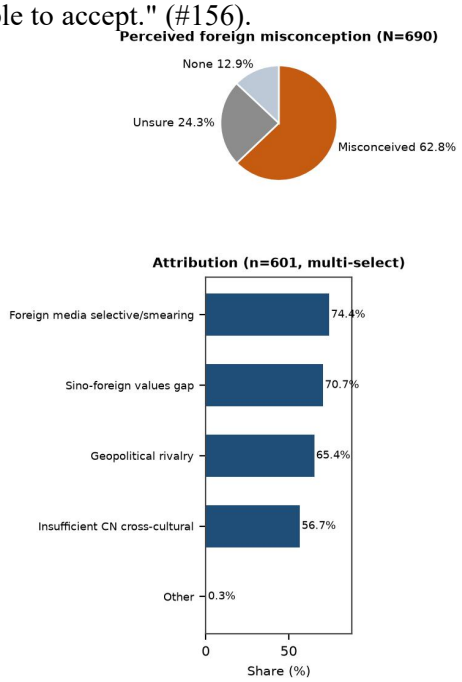

Figure 8. Perceived Foreign Misconception and Attribution Structure

Note: the Upper Panel Rests on 690 Valid Questionnaires; the Lower Panel Includes the 601 Respondents Answering the Attribution Item (433 Perceiving Misconception, 168 Unsure), Multi-Select, Shares May Exceed 100%.

2). Widespread deficit of discursive efficacy

Despite widespread misunderstandings, the willingness and actions of students to disseminate technological knowledge remain rather limited. In terms of willingness to share technological knowledge, only 18.3% expressed "very willing", 42.5% expressed "relatively willing", totaling approximately 60.8% were willing; another 29.6% held neutral or relatively mild attitudes, and 9.6% clearly stated "not willing" or "completely unwilling". Similarly, the enthusiasm for actively searching for technological information is also very low: only 16.4% "often" actively search, 63.6% only "occasionally" do so, and about 20% almost never or rarely do. This relative lack of positive intentions and actions has created a subjective psychological predicament of "having something to say but unable to express it" (data source: 690 valid questionnaires, SPSS 26.0)

Open-ended responses often carry a sense of powerlessness: "Our official discourse is too serious, while the folk discourse is too scattered; when debating abroad, I always feel that I don't have any available weapons" (#178); "Doing science popularization feels very trivial, and sometimes the country's external publicity sounds like self-talk" (#66). This sense of powerlessness is not due to ignorance of facts, but rather a methodological void in "how to effectively express". One respondent confessed: "I know that China's science has made tremendous progress, but when chatting with foreign friends, either I end up with 'wolf warrior' style expressions or I don't know where to start" (#302).

3). Strategy preference: strengths and limits of rational narrative

When asked which response strategy they would prefer when discussing Chinese technology with foreign friends, a clear gradient of preferences was observed (Table 2).

Note: multi-select, shares may exceed 100%. Source: 690 valid questionnaires, SPSS 26.0.

This distribution reveals a clear paradox: Students rationally support the strategy of "facts trumps words", but in practice, purely data-driven responses often fail to address the deeply rooted values and emotional biases in overseas dialogues. One respondent precisely expressed this: "You talk about data, he talks about values; you're not on the same wavelength. No matter how beautiful the data is, a simple 'you have no freedom of speech' can bring you down."(#421). "Preventing in-depth discussion" accounted for 30% (27.3%), this figure not only reflects the students' relatively low confidence in expressing themselves on cross-cultural topics, but also indicates that they actually choose the option of "having something to say but unable to express it". More than half (55.1%) of the students chose "analyzing pros and cons objectively", indicating that students tend to

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respond rationally and balancedly rather than making purely emotional expressions or simply avoiding the topic. (Source: 690 valid questionnaires, SPSS 26.0; strategy item multi-select, see Table 2.)

4.5 The Essence of the Dilemma: Dual Failure of Official–Folk and Structural Shortcomings

Based on the above analysis, the predicament of "having something to say but being unable to express it" is not merely caused by insufficient communication skills or lack of personal confidence; it also reflects the structural flaws existing in the current cross-cultural communication system of scientific and technological discourse.

Table 2. Response-Strategy Choices when Discussing Sci-Tech with Foreign Friends (Multi-Select, n=690)

Response strategy	Share (%)
Emphasize the "peaceful use of technology" position	55.7
Objectively analyze strengths and weaknesses	55.1
Show objective progress with data and facts	50.7
Avoid in-depth discussion	27.3
Other	0.7

The cultural-discount dilemma of official discourse. Highly politicized, diplomatic, and document-like, official discourse struggles to penetrate the cultural discount in the decentralized context of overseas social media; even when students cite official information, the “talking to itself” manner is easily rejected by counterparts.

At the same time, folk discourse also faces the problem of insufficient credibility. Although the content is vivid and closely related to daily life, folk discourse lacks stable content supply, fact verification, and credibility endorsement, making it difficult to achieve large-scale overseas dissemination. One respondent raised a question: "Many science videos on Bilibili are well-produced, but how can we get foreigners to see them? Will foreigners believe a Chinese creator?" (#234)

Apart from these two points, end users also face the problem of tool shortage.As end users of this system, students lack both high-quality discourse resources professionally translated and adapted for cross-cultural contexts and systematic cross-cultural communication training. The result is collective anxiety of “wanting to explain but not knowing how,” even gradual avoidance or silence.

Resolving this dilemma means moving beyond individual “expressive training” toward systematic reshaping of the cross-cultural communication system—the practical implications set out in the conclusion and discussion.

5. Conclusion and Discussion

5.1 Research Conclusions

Via a questionnaire of 690 students with auxiliary open-ended analysis, and working from a “discourse trust–dimensions of national identity” conceptual framework, this paper examines the association of official and folk sci-tech discourse trust with identity dimensions. The main conclusions are as follows.

For one thing, sci-tech discourse is deeply embedded in students’ information life, yet a marked trust divergence exists: official discourse holds a clear credibility advantage; folk discourse, by contrast, faces the cognitive paradox of being “intimate yet doubted.”

For another, in this sample official-discourse trust shows a significant positive association with cognitive, emotional, and behavioral identity (beta=0.32-0.38, $p<0.001$); folk trust has weakly positive zero-order correlations, yet after official trust and demographics are controlled no significant independent association is detected, with only a weak zero-order correlation with emotional identity ($r=0.11$). It is worth noting that "no significant independent association" is limited by the sample size ($n=194$) and individual measurements. This does not mean that folk discourse has no influence at all, nor does it rule out the existence of weak correlations under large sample or multi-item measurements. The two exhibit different correlation patterns, and this paper does not directly compare the magnitudes of the coefficients. These are the correlations between statistical predictions and cross-sectional data, rather than causal directions.

Extended discovery: In a cross-cultural environment, students widely perceive misunderstandings but respond insufficiently. This model reflects the structural problems of "sufficient authority but insufficient flexibility" and "sufficient flexibility but insufficient

credibility".

5.2 Theoretical Contribution and Practical Implications

The contribution of this theory lies in transcending the previous paradigm that regarded scientific and technological achievements as a general source of identity. By focusing on the process of achievement discourse and subdividing discourse into official and folk types, revealing the differentiated correlations between the two and identity construction, a new analytical dimension is provided for understanding the related factors of youth national identity.

At the practical level, three suggestions were put forward.To start with, build a coordinated communication ecology of "authoritative endorsement plus folk translation." Official channels should more openly provide first-hand information and expert resources to quality folk creators and encourage secondary creation of major achievements; folk content should set up traceability links to official sources to raise credibility.

A complementary move is to build a matrix of "folk spokespersons" for national sci-tech discourse: support a cohort of science KOLs who are professionally competent, vivid in expression, and familiar with international-communication rules, so that they become flexible nodes connecting official channels with youth and domestic with overseas audiences.

Finally, strengthen sci-tech discourse literacy education in universities: add a "sci-tech discourse and media literacy" module in ideological-political and general education to help students rationally distinguish sci-tech information from different sources and strengthen their ability and confidence to tell China's sci-tech story [20]. The first two recommendations are not directly tested by this paper's measures and are extended suggestions.

5.3 Limitations and Future Directions

Future research can expand and deepen the current research from several aspects. In terms of research subjects, the scope can be expanded through stratified sampling across regions, institutional types, and youth groups to enhance universality. In terms of design, longitudinal tracking and experimental methods can be adopted to enhance the examination of causal mechanisms and more accurately reveal the dynamic process between the dissemination of science and technology and national identity. In terms of content, researchers can engage in real cross-cultural interactions, combining discourse analysis with in-depth interviews to explore the expression strategies of young people.

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