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MEDIA COMPETENCE IN VOCATIONAL EDUCATION: A TRI-COMPONENT FRAMEWORK FOR PROFESSIONAL DEVELOPMENT OF TECHNICAL SUBJECT TEACHERS

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Abstract

The rapid digitalization of vocational education necessitates a systematic approach to developing media competence among technical subject teachers. This article presents a comprehensive tri-component framework specifically designed for vocational education instructors, particularly those teaching specialized technical subjects such as mechanical engineering. Drawing on current research in digital competence, media literacy, and adult learning theory, this framework conceptualizes media competence through three interconnected components: value-motivational, cognitive, and practical. These components are operationalized through four core skills: information searching, critical analysis, media content creation, and critical thinking. The framework employs a criterion-indicator-tool methodology for measurable assessment, addressing the unique challenges faced by vocational educators in evaluating source reliability, managing misinformation, verifying technical information, and creating appropriate instructional media. This research contributes to the growing body of literature on teacher digital competence by providing a theoretically grounded, practically applicable model that acknowledges the distinctive pedagogical context of vocational education and the principles of adult learning theory (andragogy).

Keywords: Media competence, vocational education, digital literacy, technical teacher professional development, andragogy, competency framework.

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Introduction

The contemporary vocational education landscape is characterized by increasing integration of digital technologies and media resources into teaching and learning processes. Technical subject teachers, particularly those instructing in specialized fields such as mechanical engineering, automotive technology, and industrial maintenance, face unique challenges in navigating the digital information ecosystem while maintaining technical accuracy and pedagogical effectiveness (Cattaneo et al., 2022; Wu et al., 2025). Unlike general education contexts, vocational technical education requires teachers to evaluate highly specialized technical information, assess the credibility of manufacturer specifications, interpret safety standards, and create instructional media that accurately represents complex industrial processes.

Recent studies have documented concerning gaps in digital competence among vocational education teachers worldwide. Research by Batz et al. (2021) found that while vocational teachers demonstrate basic digital technology use, they often lack systematic approaches to evaluating information credibility and creating pedagogically sound media content. Similarly, investigations in diverse contexts from Germany to Indonesia reveal that vocational educators struggle with balancing technical accuracy, information reliability, and media literacy (Schneider et al., 2020; Warno, 2025). This challenge is particularly acute in post-Soviet educational systems, including Uzbekistan, where vocational education is undergoing rapid modernization but teachers often lack comprehensive preparation for digital teaching environments.

The concept of media competence extends beyond basic digital skills or information and communication technology (ICT) proficiency. While related constructs such as digital literacy, media literacy, and information literacy are frequently employed in educational research, media competence specifically encompasses the integrated capacity to purposefully search for information, critically analyze sources, create appropriate media content, and apply critical thinking within professional educational contexts (Kellner & Share, 2019; Potter, 2023). For vocational technical teachers, this competence must be understood not merely as a personal skill but as a professional methodological position that directly influences instructional quality and student learning outcomes.

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This article addresses a critical gap in the literature by proposing a comprehensive framework specifically tailored to the professional development needs of vocational technical teachers. Unlike existing frameworks designed primarily for general education or higher education contexts, this model explicitly accounts for the distinctive characteristics of vocational education: the primacy of technical accuracy, the integration of theoretical knowledge with practical skills, the importance of workplace safety, and the application of adult learning principles (andragogy) in professional development programs (Knowles, 1984; Terehoff, 2002). The framework presented here synthesizes insights from digital competence research, critical media literacy scholarship, and competency-based assessment methodologies to provide a structured, measurable approach to media competence development.

1.1 Research Context and Significance

The urgency of addressing media competence in vocational education is underscored by several converging factors. First, the exponential growth of online technical information has created both opportunities and challenges for vocational educators. While technical documentation, manufacturer specifications, service bulletins, and instructional videos are increasingly accessible, the quality, accuracy, and pedagogical appropriateness of these resources vary dramatically. Teachers must navigate complex information hierarchies, distinguishing between authoritative manufacturer documentation, peer-reviewed technical publications, industry standards, and unreliable user-generated content.

Second, the COVID-19 pandemic accelerated the adoption of digital teaching methods in vocational education, often without adequate teacher preparation (Coulombe et al., 2020). Teachers who previously relied primarily on direct demonstration and hands-on practice were suddenly required to create video demonstrations, develop online simulations, and communicate technical procedures through digital media. This rapid transition exposed significant gaps in teachers' media competence and highlighted the need for systematic professional development.

Third, the proliferation of misinformation and unreliable technical advice on social media platforms and video-sharing sites poses specific risks in vocational

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education. Unsafe repair procedures, incorrect diagnostic methods, and non-compliant modification techniques circulate widely online, often presented with production values that may appear credible to novice viewers. Vocational teachers must develop sophisticated critical evaluation skills to protect students from potentially dangerous misinformation while also modeling media literacy practices that students will need in their professional careers.

2. Defining Media Competence in the Vocational Education Context

In the professional education literature, media competence is frequently conflated with related but distinct concepts including media literacy, information literacy, digital literacy, and digital competence. While these terms share conceptual overlap, their definitional precision matters significantly for pedagogical design and assessment. Aufderheide and Firestone (1993) defined media literacy as the ability to access, analyze, evaluate, and create media in various forms. The European Digital Competence Framework (DigComp) conceptualizes digital competence through five dimensions: information and data literacy, communication and collaboration, digital content creation, safety, and problem-solving (Ferrari, 2013). Meanwhile, critical media literacy scholars emphasize the need to examine power structures, ideological formations, and representation systems embedded in media texts (Kellner & Share, 2019).

For vocational technical teachers, media competence must be understood as a professional capability that integrates personal media skills with pedagogical purpose. Accordingly, this research proposes the following operational definition: Media competence is the integrated capacity of vocational education teachers to purposefully search for information, analyze and verify source credibility, create pedagogically appropriate media content, and apply critical thinking to media information in the context of professional educational practice, characterized by the harmonious unity of value-motivational, cognitive, and practical components. This definition embeds several critical distinctions. First, it positions media competence as fundamentally professional rather than merely personal; teachers must not only possess media skills but must deploy them strategically to achieve educational objectives. Second, it acknowledges the dual nature of the competence: teachers work with media both as individual professionals seeking to expand their knowledge and as instructional designers creating learning

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experiences for students. Third, it emphasizes verification and critical evaluation as central processes, particularly crucial in technical domains where misinformation can have safety implications. Fourth, it explicitly incorporates the motivational and attitudinal dimensions that research on teacher professional development consistently identifies as crucial for meaningful change (Terehoff, 2002).

2.1 Distinguishing Media Competence from Related Constructs

While digital competence frameworks provide valuable foundations, they typically emphasize general technological proficiency applicable across diverse contexts. Media competence, as conceptualized here, focuses specifically on the intersection of information evaluation, media content, and critical pedagogy within vocational education. It is narrower than general digital competence (which encompasses broader technology use) but deeper in its attention to critical analysis, source verification, and the creation of technically accurate instructional media.

This specificity matters because vocational technical teachers face distinctive information evaluation challenges. When a mechanical engineering instructor searches for information about hydraulic system diagnostics, they must assess not only the general credibility of sources but also technical accuracy, compliance with manufacturer specifications, adherence to safety standards, and pedagogical appropriateness for students at specific skill levels. This requires knowledge that extends beyond general information literacy skills to encompass domain-specific hierarchies of source authority (manufacturer documentation > industry standards > peer-reviewed technical journals > service manuals > online tutorials > forum advice).

3. The Tri-Component Framework of Media Competence

Following established competency modeling methodologies (Competency-Based Education Network, 2017), media competence is conceptualized through three mutually reinforcing components: value-motivational, cognitive, and practical. This tri-component structure acknowledges that effective professional practice requires not only knowledge (cognitive) and skills (practical) but also appropriate professional dispositions and motivations (value-motivational). Research on

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teacher change consistently demonstrates that professional development initiatives fail when they neglect attitudinal and motivational dimensions (Guskey, 2002; Terehoff, 2002).

3.1 Value-Motivational Component

The value-motivational component encompasses teachers' attitudes toward media and information technologies, their professional commitment to media competence development, and their intrinsic motivation to integrate media practices into teaching. Drawing on self-determination theory and adult learning principles, this component recognizes that adult learners, particularly experienced teachers, require clear professional rationales and perceived benefits to invest effort in competence development (Knowles, 1984; Ryan & Deci, 2000).

Research by Cattaneo et al. (2022) demonstrates that attitude toward technology and frequency of digital tool use are decisive factors in vocational teachers' digital competence development. Teachers who perceive media competence as essential for safe, effective instruction rather than as an administrative burden demonstrate higher engagement with professional development and more sustained application of new practices. This finding aligns with broader adult learning research indicating that professional development is most effective when participants understand the relevance to their professional roles and perceive immediate applicability (Merriam et al., 2007).

For vocational technical teachers, the value-motivational component is particularly salient in four core skill areas:

- **Information Searching:** Viewing systematic information searching not as time-consuming formality but as essential for locating quality, safe resources
- **Critical Analysis:** Valuing source verification as error prevention rather than as skepticism or wasted time
- **Media Content Creation:** Perceiving content development as a tool for efficient instruction and student independence rather than as additional burden
- **Critical Thinking:** Adopting an evidence-based professional stance that questions popular but potentially unreliable sources

Professional development programs that successfully cultivate these orientations explicitly connect media competence to core professional values: commitment to student safety, dedication to technical accuracy, and responsibility for preparing

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graduates who can function effectively in modern workplaces (Darling-Hammond et al., 2017).

3.2 Cognitive Component

The cognitive component comprises teachers' conceptual knowledge about media, information ecosystems, source credibility indicators, information security, media ethics, and pedagogical principles for media integration. Unlike general digital skills training, which often emphasizes procedural knowledge (how to use specific tools), the cognitive component of media competence emphasizes declarative and conceptual knowledge that supports informed professional judgment (Anderson & Krathwohl, 2001).

For vocational technical teachers, the cognitive component includes specialized knowledge domains that extend beyond general media literacy:

- **Information source hierarchies:** Understanding the relative authority and appropriate applications of different source types (manufacturer specifications, industry standards, peer-reviewed technical publications, service bulletins, instructional videos, forum discussions)
- **Credibility assessment criteria:** Knowledge of indicators including authorship, currency, evidence quality, alignment with standards, and author motivation
- **Media manipulation and persuasion:** Conceptual understanding of how commercial interests, algorithmic recommendation systems, and production techniques may influence technical information presentation
- **Media content design principles:** Foundational knowledge of instructional media design including cognitive load theory, multimedia learning principles, and effective visual communication
- **Information ethics and security:** Understanding of intellectual property, personal data protection, proprietary technical information, and professional confidentiality

Research on media literacy education consistently emphasizes that critical evaluation requires conceptual frameworks, not merely skepticism (Meneses, 2021; Potter, 2023). Teachers need explicit knowledge of evaluation criteria (author expertise, evidence quality, potential bias, adherence to standards) and of common manipulation techniques (selective presentation, false equivalence,

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appeal to anecdotal evidence) to support systematic rather than intuitive judgment.

3.3 Practical Component

The practical component represents the observable, demonstrable skills through which media competence manifests in professional practice. This component aligns with behaviorally anchored competency assessment approaches that emphasize specific, measurable performance indicators (Competency-Based Education Network, 2017). For vocational teachers, practical media competence is assessed through actual performance in authentic professional tasks rather than through decontextualized skill demonstrations.

The practical component is organized around four core skill domains, each with specific operational indicators:

Information Searching Skills:

- Formulating precise technical search queries
- Accessing authoritative sources (manufacturer databases, standards repositories, technical libraries)
- Organizing retrieved information systematically (topic folders, checklists, annotation systems)

Critical Analysis Skills:

- Verifying sources using multiple credibility indicators (authorship, currency, evidence, technical accuracy)
- Comparing multiple sources on the same topic
- Interpreting technical parameters and terminology correctly
- Translating evaluated information into instructional tasks

Media Content Creation Skills:

- Developing structured scripts (introduction-procedure-safety-conclusion)
- Recording clear photo/video documentation with appropriate framing and annotation
- Creating infographics, presentations, and procedural checklists

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• Distributing content through learning management systems and appropriate channels

Critical Thinking Application Skills:

• Distinguishing credible from unreliable content
• Validating claims against standards, regulations, and authoritative documentation
• Identifying manipulative or advertising-driven presentations
• Modeling evidence-based evaluation for students

Critically, these practical skills are not understood as isolated technical procedures but as professional practices integrated into educational work. A teacher creating a diagnostic demonstration video is not simply producing media; they are translating technical knowledge into pedagogically appropriate formats, anticipating student misconceptions, emphasizing safety protocols, and creating resources that support student independence.

4. Assessment Framework: Criterion-Indicator-Tool Methodology

Competency frameworks remain abstract without clear assessment methodologies. To operationalize media competence for measurement and professional development design, this framework employs a criterion-indicator-tool structure widely used in competency-based education (Competency-Based Education Network, 2017; Voorhees, 2001). This approach provides the systematic basis necessary for empirical research, program evaluation, and individual assessment while maintaining sufficient flexibility for diverse vocational education contexts.

4.1 Conceptual Structure

The assessment framework employs three interrelated concepts:

• **Criteria:** Broad assessment dimensions corresponding to key aspects of media competence (e.g., source verification reliability, content creation quality)
• **Indicators:** Observable manifestations of each criterion (e.g., checks source date and authorship, compares multiple sources, verifies technical specifications against standards)

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- **Tools:** Instruments for measuring indicators (survey items, performance tasks, content analysis protocols, observation rubrics)

This structure enables progression from abstract competence to concrete, measurable behaviors. Each component (value-motivational, cognitive, practical) is assessed through multiple criteria, each criterion is specified through observable indicators, and each indicator is measured through appropriate tools. The resulting assessment system supports both formative evaluation (identifying development needs) and summative evaluation (determining competence levels).

4.2 Proficiency Level Descriptors

Following established competency assessment practice, indicators are described across proficiency levels (low-medium-high or developing-competent-advanced). Behaviorally anchored descriptors specify what performance at each level looks like in practice. For example, the indicator 'verifies source credibility' might be specified as:

- **Low proficiency:** Does not verify sources systematically or relies on single indicator (e.g., only checks if source looks professional)
- **Medium proficiency:** Verifies sources using 2-3 indicators (date, author credentials, presence of citations) but does not consistently compare multiple sources
- **High proficiency:** Systematically verifies sources using multiple indicators, compares multiple sources, and validates technical content against authoritative standards before use

This approach makes assessment transparent and criterion-referenced rather than norm-referenced. Teachers and professional development facilitators can identify specific development needs rather than merely ranking participants. Moreover, clear proficiency descriptors support self-assessment, a crucial element of adult learning (Knowles, 1984; Merriam et al., 2007).

4.3 Alignment with Core Skills

Assessment criteria are organized around the four core skills that operationalize media competence: information searching, critical analysis, media content creation, and critical thinking application. Each skill domain has associated criteria that cut across the three components (value-motivational, cognitive,

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practical). This matrix structure ensures comprehensive assessment while maintaining coherence around the core skill framework.

For example, information searching competence is assessed through:

- **Value-motivational criteria:** Perceives searching as essential professional practice rather than burden
- **Cognitive criteria:** Understands search strategies, source hierarchies, and information organization principles
- **Practical criteria:** Demonstrates effective search query formulation, source access, and information organization in authentic tasks

This comprehensive approach acknowledges that effective performance requires alignment of motivation, knowledge, and skill. A teacher who possesses search skills but does not value systematic searching or who values it but lacks knowledge of authoritative sources will not demonstrate sustained, effective practice.

5. Andragogical Principles in Media Competence Development

A distinctive feature of this framework is its explicit integration of andragogical principles—the theory and practice of adult learning—into media competence development (Knowles, 1984). Vocational teacher professional development differs fundamentally from pre-service teacher education or student instruction. Adult learners bring extensive professional experience, established teaching practices, competing time demands, and specific motivational profiles that must be acknowledged in professional development design (Merriam et al., 2007; Terehoff, 2002).

Malcolm Knowles identified several key assumptions about adult learners that have important implications for media competence professional development:

5.1 Self-Directedness and Autonomy

Adult learners have a self-concept as autonomous, self-directing individuals. Professional development that treats experienced teachers as passive recipients of training violates this self-concept and generates resistance (Knowles, 1984). Effective media competence development therefore positions teachers as active agents in their own learning, providing opportunities to assess their current

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competence, identify priority development areas, and select learning pathways aligned with their teaching contexts.

In practice, this means professional development programs should include self-assessment tools, choice in learning activities, and opportunities for teachers to apply new competencies to their own instructional challenges rather than to generic scenarios. When teachers select authentic technical topics from their own curricula as the basis for information searching practice, the learning becomes immediately relevant and the competence development directly supports their teaching work.

5.2 Experience as Learning Resource

Adult learners accumulate extensive experience that becomes an increasingly rich resource for learning. Vocational teachers, particularly those who worked in industry before entering education, bring valuable technical expertise and practical knowledge to professional development. Effective programs build on rather than dismissing this experience (Merriam et al., 2007).

For media competence development, this principle suggests that teachers should be encouraged to critically examine their current media practices, identify both effective strategies and areas for development, and share experiences with colleagues. A teacher who has successfully created demonstration videos can serve as a peer resource while also identifying areas where critical source evaluation might strengthen their practice. Collaborative learning structures (communities of practice, peer review, mentoring) leverage collective professional experience.

5.3 Problem-Centered Orientation

Unlike children and adolescents whose education is often subject-centered, adults are motivated by learning that addresses immediate problems and challenges in their lives (Knowles, 1984). Vocational teachers engage with professional development most seriously when they perceive it as solving real instructional problems they face.

The media competence framework addresses this orientation by anchoring learning in authentic professional scenarios: How do I find reliable information about a new diagnostic procedure? How can I verify that a popular online tutorial

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demonstrates safe practice? How do I create a demonstration video that students can reference during independent practice? How do I help students evaluate technical information sources they encounter online? These problem-centered prompts engage teachers' professional commitment while developing media competence.

5.4 Internal Motivation

While adults respond to some external motivators (better positions, salary increases, certification requirements), the most potent motivators are internal: increased job satisfaction, self-esteem, quality of life, professional efficacy (Knowles, 1984). For teachers specifically, research consistently demonstrates that perceived impact on student learning is a primary professional motivator (Darling-Hammond et al., 2017).

Media competence professional development therefore emphasizes the connection between teacher competence and student outcomes. When teachers understand that systematic source evaluation helps them avoid teaching unsafe procedures, that creating clear demonstration videos supports student independence and success, and that modeling critical evaluation develops students' professional judgment, they are motivated by their core professional commitment to student learning and safety.

The value-motivational component of the framework directly addresses these motivational factors by explicitly cultivating professional values and attitudes rather than assuming compliance through mandate. Research on teacher change demonstrates that lasting practice change requires internalized conviction that new practices serve professional values, not merely external compliance (Guskey, 2002).

6. Framework Integration and Professional Application

The tri-component framework achieves its full potential when the value-motivational, cognitive, and practical elements function in integrated fashion within authentic professional practice. An illustrative professional scenario demonstrates this integration:

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Scenario: Preparing a Hydraulic System Diagnostics Lesson

A mechanical engineering instructor needs to develop a practical laboratory session on hydraulic pressure loss diagnostics for agricultural tractors. The task requires creating demonstration materials and diagnostic procedures for students.

Value-Motivational Dimension:

The instructor recognizes that unreliable diagnostic procedures could lead students to misdiagnose expensive equipment or recommend unsafe repairs. This professional concern motivates careful source selection. The instructor values evidence-based practice and understands that taking time to verify information prevents costly errors and enhances student learning.

Cognitive Dimension:

The instructor understands the hierarchy of sources for hydraulic system information: manufacturer service manuals provide authoritative specifications, industry standards define safety requirements, peer-reviewed technical journals offer validated diagnostic approaches, while online videos may be convenient but require careful verification. The instructor knows specific credibility indicators: manufacturer documentation should be current for the specific tractor model, procedures must align with safety standards, and diagnostic parameters should match equipment specifications.

Practical Dimension

The instructor accesses the tractor manufacturer's technical portal, locates the appropriate service manual, and extracts the standard diagnostic procedure. To verify this information, the instructor compares it with procedures in a second manufacturer's documentation and checks alignment with relevant industry safety standards. The instructor then develops a 5-minute demonstration video following a structured script: introduction (safety considerations and required tools), step-by-step procedure (with clear visual documentation of each diagnostic step), safety reminders (emphasizing pressure release and proper tool use), and summary (common errors to avoid). This media content is then distributed through the institution's learning management system with an

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accompanying diagnostic checklist that students will complete during independent practice.

This scenario illustrates how the three components work in concert: professional values motivate systematic practice, conceptual knowledge guides strategic decisions, and practical skills enable effective execution. The four core competencies—information searching, critical analysis, media content creation, and critical thinking—are not isolated exercises but integrated professional practices.

7. Discussion and Implications

7.1 Theoretical Contributions

This framework makes several theoretical contributions to the literature on teacher digital competence and media literacy. First, it provides a conceptually integrated model specifically designed for vocational technical education, addressing a gap in frameworks that are typically designed for general education or higher education contexts. The framework acknowledges the distinctive epistemological and pedagogical characteristics of vocational technical teaching: the primacy of technical accuracy, integration of safety protocols, close connection to industry standards and practices, and emphasis on demonstrated practical competence.

Second, the framework integrates insights from multiple theoretical traditions—competency-based education, critical media literacy, information literacy, and adult learning theory—into a coherent model rather than treating these as separate concerns. The tri-component structure (value-motivational, cognitive, practical) explicitly addresses the full scope of professional competence rather than focusing narrowly on skills. The inclusion of andragogical principles acknowledges that teacher professional development differs fundamentally from student instruction and requires approaches consistent with adult learning characteristics.

Third, the framework provides a systematic assessment methodology through the criterion-indicator-tool structure. This moves media competence from an abstract aspiration to a measurable construct that can support both research and professional development program evaluation. The emphasis on behavioral

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indicators and proficiency level descriptors enables transparent, criterion-referenced assessment rather than vague global judgments.

7.2 Practical Implications

For professional development practice, this framework provides several actionable implications. Professional development programs should be designed around authentic professional scenarios rather than generic technology training. When teachers practice information searching using real topics from their curricula, create demonstration media for actual lessons they will teach, and evaluate sources they might actually use, the learning transfers directly to practice.

Programs should explicitly address the value-motivational dimension by helping teachers understand connections between media competence and their core professional values: student safety, technical accuracy, instructional effectiveness. External mandates alone rarely generate lasting practice change; teachers need to understand why media competence matters for their professional responsibilities (Guskey, 2002; Terehoff, 2002).

Assessment should employ multiple methods appropriate to different competence dimensions. Surveys can assess value-motivational orientations, knowledge tests can evaluate cognitive understanding, and performance tasks can measure practical skills. Portfolio assessment, where teachers document their media competence development through artifacts of actual professional practice, aligns particularly well with adult learning principles by emphasizing self-direction and authentic application.

Professional development should be structured to support progressive competence development over time rather than single workshops. The research on teacher change consistently demonstrates that meaningful practice change requires ongoing support, opportunities for practice with feedback, and time for new approaches to become routine (Darling-Hammond et al., 2017). A sustained professional learning community model where teachers work collaboratively on media competence development, share resources and strategies, and provide peer feedback aligns well with both adult learning principles and evidence on effective professional development.

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7.3 Limitations and Future Research Directions

This article presents a theoretical framework that requires empirical validation. Future research should test the framework's validity through multiple studies: psychometric validation of assessment instruments based on the criterion-indicator structure, intervention studies examining whether professional development designed according to framework principles produces measurable competence improvements, and qualitative research exploring how teachers experience and make sense of media competence development.

Cross-cultural research is needed to examine whether the framework requires adaptation for different educational systems and cultural contexts. While the framework is grounded in international research literature, its initial development in the Central Asian vocational education context may limit generalizability. Comparative studies examining the framework's applicability across diverse national and institutional contexts would strengthen its theoretical foundation.

Longitudinal research is needed to understand media competence development trajectories and the sustainability of competence gains. Do teachers who develop media competence through professional development continue applying these practices years later? How do changing technologies and information landscapes affect competence requirements over time? These questions require extended research programs.

Finally, research examining the relationship between teacher media competence and student learning outcomes would provide crucial validation of the framework's ultimate purpose. Does enhanced teacher media competence translate into improved student technical knowledge, better critical evaluation skills, and safer professional practice? Such research would complete the logical chain from teacher professional development to student benefit.

8. Conclusion

This article has presented a comprehensive framework for conceptualizing and assessing media competence among vocational technical education teachers. The framework addresses a critical gap in the literature by providing a theoretically grounded, empirically measurable model specifically designed for the distinctive context of vocational technical education. By integrating value-motivational, cognitive, and practical components around four core skills—information

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searching, critical analysis, media content creation, and critical thinking—the framework provides a holistic approach to professional competence development.

The explicit incorporation of andragogical principles acknowledges that vocational teacher professional development must respect the characteristics of adult learners: self-direction, experiential learning, problem-centered orientation, and internal motivation. Professional development designed according to these principles has greater potential to generate meaningful, sustained practice change than training approaches that ignore adult learning characteristics.

The criterion-indicator-tool assessment methodology provides the operational specificity necessary to move from abstract competence to measurable professional practice. By defining clear proficiency levels and observable indicators, the framework supports both formative assessment (identifying development needs) and summative assessment (determining competence levels). This assessment structure can guide professional development program design, enable program evaluation, and support individual teacher professional growth.

As vocational education continues to evolve in response to technological change, workplace transformation, and pedagogical innovation, teacher media competence will become increasingly central to instructional quality. Teachers who can navigate the complex digital information ecosystem, critically evaluate technical information, create effective instructional media, and model critical thinking for students will be better positioned to prepare graduates for modern technical careers. This framework provides a foundation for systematic development of these crucial professional capabilities.

The framework presented here should be understood not as a final answer but as a contribution to ongoing scholarly dialogue about teacher professional competence in digital age. It offers a structured approach to understanding, developing, and assessing media competence while acknowledging that technological change, pedagogical innovation, and deeper understanding of learning processes will require continued refinement and adaptation. The essential insight—that media competence for vocational technical teachers requires integrated development of professional values, conceptual knowledge, and practical skills situated within authentic professional practice—provides an enduring foundation for this continuing work.

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