

Article

Integrating Digital Technologies and Curriculum-Based Ideological and Political Education in Career Guidance Courses at Medical and Pharmaceutical Universities: A Conceptual Framework for Teaching Reform

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Abstract: Career development and employment guidance courses at medical and pharmaceutical universities address both job-search preparation and education in professional values, ethics, and social responsibility. Yet digital tools and curriculum-based ideological and political education are often developed separately. This can lead to excessive online materials, substitution of technology for teaching, values content added as an isolated component, and assessment focused on final products rather than learning processes. Here, curriculum-based ideological and political education means integrating professional ethics, social responsibility, integrity, and service to public health into disciplinary teaching rather than treating them as a separate political course. For students in medical and pharmaceutical fields, this paper proposes a framework comprising one platform, two forms of integration, three modules, and four dimensions of evaluation. Within the framework, existing learning platforms would be used to organize resources, tasks, feedback, and documented learning records. The two forms of integration connect digital technologies with career guidance and values education with medical and pharmaceutical education. The three modules address career awareness and values, job-search skills with generative AI support, and professional ethics with employment in primary-level health services. The proposed assessment considers platform participation, learning tasks, student feedback, and teacher judgment. Implementation should emphasize proportionate tool use, teacher review, data protection, and authentic practice. The framework is intended for small-scale testing and refinement.

Keywords: digital technologies; curriculum-based ideological and political education; medical and pharmaceutical universities; career guidance; generative artificial intelligence; process-oriented assessment

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1. Introduction

University career development and employment guidance courses combine policy interpretation, practical training, and student advising. Their quality depends not only on the completeness of the course content but also on whether students engage with job-search preparation through interactive and practice-based activities [1]. Graduates of medical and pharmaceutical universities commonly enter healthcare institutions, pharmaceutical companies, primary-level health services, or public administration. Their work is closely tied to public health, the public interest, and professional standards. These courses should therefore do more than teach general job-search skills such as résumé writing, interview communication, and examination strategies. They should also help students understand professional ethics, patient-centered practice, social responsibility, and the relation between personal development and social and national needs [2]. In the framework proposed here, these concerns are considered alongside national health priorities.

Learning platforms, online quizzes, learning analytics, and generative artificial intelligence are increasingly used in university career guidance courses. A survey of university students found that generative AI was already being used for job-search tasks such as revising résumés and practicing interviews [3]. Digital teaching reform, however, can remain at the stage of introducing isolated tools when technology is not tied to a specific educational problem; such use does not by itself change teaching processes, organizational arrangements, or evaluation [4]. Without clear instructional constraints, students may also use generative AI in ways that introduce false information or weaken independent thinking [3]. In career guidance, this risk is especially relevant when students do not check job information or adapt the text to their own experience. Values-related content can likewise become an appended and superficial element if it is separated from job-search training [5].

These concerns suggest that digital tools, values education, and the characteristics of medical and pharmaceutical work should be considered within a single teaching design. In this design, digital tools would be used to organize resources, diagnose learning needs, provide feedback on practice, and document the learning process. Curriculum-based ideological and political education would address the value and responsibility dimensions of career choices, while industry-specific situations would give both forms of teaching a concrete setting. Considering all three in one design may reduce the separation between technology use and the teaching of professional values.

2. Rationale for Integrating Digital Technologies and Curriculum-Based Ideological and Political Education

2.1. Digital Technologies Should Address Teaching Problems Rather Than Become an End in Themselves

Digital reform does not require the development of a new platform, nor does it mean moving every face-to-face activity online. Research on digital transformation in education argues that change should begin with practical problems and be refined through evaluation and iteration [4]. For an institution-level teaching reform project, a more workable approach is to use the university's existing platform to connect pre-class diagnosis, in-class tasks, resource access, assignment feedback, and learning records. The value of a digital tool should be judged by whether it supports student participation, individualized learning, timely feedback, or documented evidence of the learning process.

University students have reported using generative AI to revise résumés and simulate interviews [3]. In the proposed course, it would not replace students' authentic in-person observation and practical training or teachers' review of professional standards and recruitment information. Existing research further suggests that the effect of generative AI varies by task: it is more likely to substitute for work on standardized and procedural tasks, but to supplement human work on creative and individualized tasks [6]. Career guidance should move beyond showing students how to operate a tool. Students need to compare outputs, verify claims, and decide what is appropriate before using the material.

2.2. Curriculum-Based Ideological and Political Education Should Be Embedded in Career Tasks Rather Than Added at the End of Class

In employment guidance, curriculum-based ideological and political education should begin with career choices and situations that students are likely to encounter. A discussion of job selection, for example, can examine the relation between individual development and needs in primary-level health services. Résumé and interview exercises can address honesty; cases from healthcare institutions and pharmaceutical companies can raise questions about patient interests, regulatory compliance, and professional responsibility. Prior work cautions against attaching values-related commentary mechanically to the end of a lesson and instead recommends identifying the educational values already present in the subject matter [2]. Values become part of the course when

students consider them while working through a task, conflict, or decision, rather than encountering them only as general statements.

In medical and pharmaceutical universities, job-search training can also address the sector's mission, professional ethics, employment rights, and national health priorities. This places questions about why the work matters, whom it serves, and what responsibilities it carries alongside the practical steps of seeking employment [2].

2.3. Teaching Reform Requires Observable and Assessable Processes

Employment outcomes are shaped by discipline-specific labor supply and demand, regional economic conditions, and individual circumstances. A course should not be judged by the final employment rate alone. In a pilot, evaluation could look instead at work produced during the course: more specific job analyses, truthful résumés, clearer interview responses, attention to responsibility in career decisions, and verification of information obtained through generative AI.

Four kinds of evidence are relevant to this evaluation: records of the learning process, task products, student experience, and teacher observation. Research on digital transformation calls for more varied forms of process-oriented evaluation [4]. In this framework, platform records, assignments, classroom feedback, and revision histories would make students' work open to review.

3. The "One Platform, Two Forms of Integration, Three Modules, and Four Dimensions of Evaluation" Framework

3.1. One Platform: Using Existing Infrastructure to Connect the Learning Process

The proposed design uses the university's existing platform to keep five stages in one place: pre-class diagnosis, resource review, classroom tasks, post-class revision, and feedback and assessment. A short questionnaire before class helps the teacher understand students' career goals, job-search preparation, and use of AI tools. Students then review job descriptions, representative cases, and task instructions on the platform before turning to position analysis, résumé revision, and situations requiring professional judgment in class. Their revised product and short reflection are submitted after class and reviewed with a rubric. The platform has a limited role: it organizes the work and preserves a record of it, without requiring elaborate functions.

3.2. Two Forms of Integration: Connecting Technology with Career Guidance and Values Education with Medical and Pharmaceutical Education

One form of integration concerns how digital tools are used in career guidance. The teacher selects a tool only after defining the learning task. Generative AI might, for example, help students revise a résumé or simulate an interview, but its output would still need to be checked for false or inaccurate information [3]. In the proposed course, it could also be used to extract skill requirements from job postings.

The second form addresses curriculum-based ideological and political education through medical and pharmaceutical content. A study of career development education for medical students identifies social responsibility, service, patient-centered practice, and lawful medical practice as relevant values [2]. In the proposed course, students would examine integrity, responsibility, commitment to service, and legal awareness through materials on healthcare positions, medical services, employment in primary-level health services, and professional values.

3.3. Three Modules: From Career Awareness to Job-Search Action and Responsible Choice

3.3.1. Career Awareness and Values

This module asks students to examine developments in the sector, career options associated with their fields of study, and occupational roles. The aim is to help them compare their own preparation with sector needs and to consider how personal career development relates to public health, primary-level health services, and national health priorities. The module encourages students to pursue personal development while responding to social needs [2].

3.3.2. Job-Search Skills and Generative AI Support

Tasks focus on position analysis, résumé writing, interview practice, and verification of recruitment information. University students have used generative AI for résumé revision and simulated interviews [3]. Students should nevertheless retain responsibility for value judgments and final decisions when using the tool [6]. In this module, they would explain why they accepted, revised, or rejected a recommendation.

3.3.3. Professional Ethics and Employment in Primary-Level Health Services

Research on medical students' career development connects it with social responsibility and service where people are most in need [2]. In the proposed module, cases involving healthcare institutions, pharmaceutical companies, primary-level health services, and public administration would prompt discussion of honest job seeking, patient interests, regulatory compliance, employment rights, and social responsibility in career choice.

3.4. Four Dimensions of Evaluation: Process, Products, Student Experience, and Teacher Observation

In the proposed framework, platform participation would be assessed through resource use, task submission, and revision records. Task assessment would consider the quality of position analyses, résumés, interview performance, and judgments in case discussions. Student feedback would address perceived learning gains, the suitability of the tools, and students' identification with the values addressed in the course. Teacher assessment would focus on participation, collaboration, communication, responsibility, and the ability to verify information.

At the outset of an institution-level project, these four dimensions do not require a complicated weighting scheme. Research on digital transformation supports more varied forms of process-oriented assessment [4]. For this project, a practical starting point would be to combine rubrics, assignment scoring, classroom observation, and brief reflections to obtain a fuller record of the learning process.

4. Key Steps in Teaching Implementation

4.1. Pre-Class Diagnosis

A short pre-class questionnaire asks about students' career goals, job-search plans, how they use AI, and their understanding of professional responsibility in medical and pharmaceutical work. The responses help the teacher set the level of difficulty for the cases and identify teaching priorities.

4.2. A Task-Driven Classroom

Each topic is organized around a product students can submit, such as an analysis of position-specific competencies, a revised résumé, a record of a mock interview, or an analysis of a case involving professional ethics in the sector. The product gives classroom practice and discussion a concrete focus. It also creates space for practice, discussion, feedback, and rehearsal [1].

4.3. Verification of AI-Generated Output

Students are expected to verify AI-generated material, assess the accuracy of its claims, and revise it to reflect their own experience. They should be able to identify fabricated experiences, exaggerated claims, factual errors, and inappropriate career advice. The teacher should explain that misuse can spread false information and weaken independent thinking [3].

4.4. Post-Class Revision and Reflection

After class, students submit an initial draft, a final draft, and a short note answering three questions: What did the tool suggest? What did I accept, revise, or reject? Why? The revision record can provide a fuller view of learning than a single final answer.

4.5. Ongoing Assessment and Adjustment

After each topic, the teacher reviews issues evident in the questionnaire, classroom observations, and assignments, then adjusts the cases, prompts, and scoring criteria. The project should begin as a small-scale pilot, and neither a single class session nor a single satisfaction measure should be treated as a final judgment of effectiveness.

5. Implementation Support and Risk Management

5.1. Teacher Review

AI-generated content should be treated only as learning material or a source of suggestions for revision. Misuse can spread false information [3]. In the proposed course, any information about employment policy, professional qualifications, legal rights, or industry standards should be checked by the teacher before it is used in class.

5.2. Protection of Personal Information

Data privacy is a recognized concern in students' use of generative AI [3]. In this course, classroom cases should be de-identified whenever possible. Students should not upload government-issued identification numbers, personal contact details, complete transcripts, sensitive information contained in actual job-application documents, or non-public information from employers to a learning platform or generative AI tool.

5.3. Stable Teaching Goals

Generative AI changes rapidly, but the course goals should remain focused on career awareness, job-search planning, students' capabilities, integrity and responsibility, and independent decision-making. Changes in available tools should not drive frequent revisions to the course content or pull the course away from these aims.

5.4. Documenting Authentic Evidence

For a small-scale pilot, later review should rest on more than a narrative summary. Lesson plans and platform records would show how the design was organized, while student work, original questionnaire responses, and teaching reflections would document what occurred during implementation. Records of how project outputs are used or adopted should also be kept. These materials could support a review of implementation, but they would not by themselves establish teaching effectiveness.

6. Conclusions

This paper begins with the career tasks students face, rather than with the novelty of a platform or tool. Within the proposed design, digital tools have limited, identifiable uses: diagnosing needs, supporting practice, providing feedback, and preserving records. The same tasks are also where curriculum-based ideological and political education is addressed, through discussion of honest job seeking, professional ethics, and employment in primary-level health services. Documented learning records would show how the design was carried out, but would not by themselves demonstrate its effectiveness.

The proposal is deliberately limited in scope and relies on resources already available at the university. A small classroom pilot within the institution-level project could examine whether it fits local teaching conditions and which parts need adjustment. A future evaluation could compare students' performance before and after the course and examine the work they produce. Until such evidence is available, the framework remains a proposal for testing rather than a demonstrated model.

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