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Short communication

Agile pharmacy curricula for a sustainable profession

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Introduction

Pharmacy education in Europe has long been shaped by a regulatory framework ensuring harmonized qualifications and professional mobility. However, the profession is undergoing rapid transformation. Workforce shortages, evolving roles, digitalization, and increasing expectations for patient-centered and interprofessional care are redefining pharmacists' work (FIP, 2023, 2025).

This creates a fundamental tension: while regulation provides stability, professional practice requires agility. Pharmacy curricula must therefore not only reflect current scientific knowledge but also prepare graduates for continuous adaptation. Importantly, the competences of experienced pharmacists - developed through practice and judgement - cannot be fully achieved during undergraduate education. Faculties can "produce" novices or beginners, not experts. This should not be seen as a limitation but as a defining feature of pharmacy as a lifelong learning profession.

Workforce challenges and evolving expectations

International analyses highlight persistent workforce shortages, changing practice environments and increasing workload pressures. At the same time, pharmacists are expected to take on expanded roles in clinical care, public health and digital services

(FIP, 2023; FIP, 2025). These trends are associated with increasing expectations for:

- clinical decision-making and patient-centred care,
- interprofessional collaboration,
- engagement in public health,
- use of digital technologies.

Educational systems are thus expected to prepare graduates who are scientifically competent, adaptable and able to work in different complex environments (healthcare, industry, regulation…).

Regulatory frameworks: a dynamic reference

Pharmacy is a regulated profession under Directive 2005/36/EC, which defines minimum training requirements and ensures professional mobility. However, recent updates demonstrate that regulation itself is evolving in response to professional developments and increasingly emphasizes a patient-centred approach (European Commission, 2024).

Nevertheless, regulation primarily defines entry-level competences. It does not fully capture the progressive development of professional expertise. This reinforces the need to view undergraduate

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education as the starting point of a broader developmental continuum.

From competences to agile curricula

EAFP proposes that pharmacy education should be built on four pillars: a balance between science and practice, experiential learning, teamwork, and readiness for lifelong learning (EAFP, 2018). These principles remain highly relevant in the current context. More recent EAFP documents highlight competence-based education, digital innovation and sustainability, while FIP Development Goals provide a global framework linking education, practice and workforce transformation (FIP, 2020; EAFP, 2024; EAFP, 2025).

Agility in curricula should be understood as structured adaptability rather than constant reform. Agile pharmacy curricula should therefore:

• ensure strong scientific foundations with clinical integration,
• include early experiential learning,
• foster interprofessional competences,
• integrate digital skills,
• address sustainability and health systems,
• support lifelong learning pathways.

Such design supports both immediate employability and long-term professional development.

Lifelong learning and professional sustainability

FIP evidence shows significant variation in education, training and workforce development systems, with common gaps in competency development, early career training and continuing professional development (FIP, 2023). Workforce sustainability is closely linked to access to lifelong learning opportunities, professional development pathways and supportive work environments.

EAFP emphasizes that sustainability depends not only on initial education but on continuous development through formal and informal learning activities (EAFP, 2025).

This perspective leads to an important conclusion: pharmacy education cannot be viewed as a standalone process. It must be embedded within a broader ecosystem involving universities, professional organizations and employers. Undergraduate curricula should therefore focus on preparing graduates for continuous learning, rather than attempting to achieve complete professional competence at the point of graduation.

Conclusion

Pharmacy is entering a period of accelerated transformation driven by workforce challenges, technological advances and societal needs. Regulatory frameworks and competence models are evolving, and expectations toward pharmacists are increasing. Agile pharmacy curricula provide a necessary response - through a clear educational philosophy that recognizes the limits of initial education, embraces competence development as a dynamic process, and places lifelong learning at the centre of professional identity.

Ultimately, the sustainability of the pharmacy profession will depend on the ability to connect education, practice and continuous development into a coherent and responsive system. Preparing graduates for this journey - rather than for a static endpoint - may be the most important role of pharmacy education today.

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