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## Methodological Approaches to Academic Staff Development via Digital Resources

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**Abstract.** Since 2024, Ukraine's occupational standard for higher education teachers has formally listed professional development among academic staff's core labour functions, reflecting a wider shift in which digitalisation is turning internet resources into a leading instrument of distance, blended, and flipped learning. Existing scholarship substantiates several methodological approaches to this process but typically treats them in isolation, leaving academic staff development via digital resources without a systematised foundation. This article addresses that gap. The purpose is to characterise methodological approaches (acmeological, competency-based, innovation-project, integrative, information-communication, and practice-oriented) and to justify their combined application as an interrelated foundation for organising academic staff development through digital resources. The study is theoretical: it draws on the analysis and synthesis of Ukrainian pedagogical literature and the 2024 occupational standard, applying conceptual-terminological and comparative methods to a source base of fourteen items published between 2010 and 2025. The findings show each approach addresses a distinct facet of growth: acmeological orients staff towards mastery; competency-based shifts emphasis to applying knowledge; innovation-project channels growth into concrete outcomes; integrative unites formal, non-formal, and informal learning; information-communication builds the digital literacy on which the others depend; practice-oriented anchors development in real problems. Digital resources emerge as the shared infrastructure that makes each approach realisable at scale. The article concludes that professional development via digital resources is most fully grounded when these approaches are applied jointly, offering a coherent methodological framework for university

management and staff-development practitioners. Directions for further research include empirical validation of these methodological approaches among practising staff and comparative studies across universities of different types and size.

**Keywords:** professional development, academic staff, digital resources, methodological approaches, acmeological approach, competency-based approach, innovation-project approach, integrative approach, information-communication approach, digital competence.

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**Анотація.** З 2024 року професійний стандарт «Викладач закладу вищої освіти» закріпив професійний розвиток серед ключових трудових функцій науково-педагогічних працівників, що відображає ширші зміни, за яких цифровізація перетворює цифрові ресурси на провідний інструмент дистанційного, змішаного та перевернутого навчання. Наявні джерела обґрунтовують окремі методологічні підходи до цього процесу, проте здебільшого розглядають їх ізольовано, залишаючи професійний розвиток викладачів на основі цифрових ресурсів без систематизованого підґрунтя. Мета дослідження – схарактеризувати методологічні підходи (акмеологічний, компетентнісний, інноваційно-проектний, інтегративний, інформаційно-комунікаційний та практико-орієнтований), а також обґрунтувати доцільність їх комплексного застосування як взаємопов'язаної основи організації професійного розвитку науково-педагогічних працівників засобами цифрових ресурсів. Дослідження є теоретичним: воно спирається на аналіз і синтез педагогічної літератури та положень професійного стандарту 2024 року із застосуванням понятійно-термінологічного та порівняльного методів до джерельної бази з чотирнадцяти позицій 2010–2025 рр. Результати засвідчують, що кожен підхід розкриває окрему грань зростання: акмеологічний орієнтує на майстерність; компетентнісний зміщує акцент на практичне застосування знань; інноваційно-проектний спрямовує розвиток у бік конкретних результатів; інтегративний поєднує формальне, неформальне та інформальне навчання; інформаційно-комунікаційний формує цифрову грамотність, на якій

ґрунтуються інші підходи; практико-орієнтований прив'язує розвиток до реальних освітніх проблем. Цифрові ресурси постають спільною інфраструктурою, що уможливорює реалізацію кожного підходу. Зроблено висновок, що такий професійний розвиток найповніше реалізується за умови комплексного застосування цих підходів, що дає керівництву закладів вищої освіти цілісну методологічну основу. Перспективи подальших досліджень охоплюють емпіричну верифікацію запропонованої основи та порівняльні дослідження в університетах різних типів і розмірів.

**Ключові слова:** професійний розвиток, науково-педагогічні працівники, цифрові ресурси, методологічні підходи, акмеологічний підхід, компетентнісний підхід, інноваційно-проектний підхід, інтегративний підхід, інформаційно-комунікаційний підхід, цифрова компетентність.

## Introduction

**Topicality of the problem.** Topicality of the problem. Since 2024, Ukraine's occupational standard for higher education teachers has formally listed professional development among the core labour functions of academic staff, requiring the ability to organise one's own growth, support colleagues, and initiate development projects [8]. This reflects a wider shift already under way in Ukrainian higher education, where digitalisation is turning digital resources from an auxiliary aid into a leading instrument of distance, blended and flipped learning, international collaboration, and self-directed growth.

Scholars converge in treating professional development as a continuous, multidimensional process oriented towards new educational contexts, curricular demands, and experience exchange among colleagues [9]. Digital competence is increasingly named among its key constituents, essential for distance and blended teaching, collegial communication, and information security [6; 13]. Recent studies stress that digitalisation demands not only technical skill but critical thinking, pedagogical flexibility, and ethical responsibility, calling for international digital-competence models to be adapted to the Ukrainian context [7].

Despite this convergence on what professional development should achieve, its methodological grounding remains fragmented across separate strands of literature – acmeological, competency-based, innovation-project, integrative, information-communication, and practice-oriented – each explored largely in isolation. No study has yet brought these six approaches together as an interrelated foundation specific to digital-resource-based professional development. The problem addressed here is precisely this absence of a systematised account of how the six approaches jointly substantiate the professional development of academic staff via digital resources.

The aim of the article is to characterise each of these six methodological approaches and to justify their combined applicability as an interconnected methodological basis for organising the professional development of academic staff through digital resources.

**Literature review.** The reviewed sources fall into two groups that have developed largely in parallel: Ukrainian scholarship, which substantiates the individual methodological approaches, and international scholarship, which supplies frameworks and empirical evidence for digital competence and technology-mediated professional learning.

Within the first group, the sources cluster around the six approaches this study seeks to unify, but rarely address more than one at a time. Yevtukh and Skoryk [5] ground the acmeological approach in a person's development towards maturity and mastery, framing it as achievement motivation, self-development, and reflective capacity – a strong theoretical basis, though not linked to any digital mechanism. The competency-based approach is substantiated by Spirin et al. [13], who show that digital competence requires applying tools to real problems rather than mere computer literacy, positioning digital resources as a natural vehicle for

competency formation. The innovation-project approach draws on Hromov [2] and Havrysh and Kyrylenko [1], who treat project and grant activity as central to professional formation, extended by Polotai and Hrynyk [12] and Flakina [14] into innovative educational projects – well documented, but rarely tied to digital infrastructure. Dubaseniuk [3] and Dubaseniuk and Vozniuk [4] anchor the integrative approach, defining integration as connecting content components into a holistic view of the profession, a definition this study extends to formal, non-formal, and informal online learning. Ovcharuk [11] substantiates the information-communication approach, though writing before the present scale of online platforms; Ivashev et al. [6] complement this by treating information-communication technologies as the means of developing teachers' digital competence. Novyk, Venhlovska, and Kuzemko [10] most directly anticipate the practice-oriented approach, cataloguing specific digital resources used in future teachers' development. Mukan and Hrohodka [9], the 2024 occupational standard [8], and Kaliuzhna [7] supply broader context.

The second group addresses the same phenomenon from a different angle. Redecker [21] and Mishra and Koehler [20] provide the two frameworks most frequently invoked in Ukrainian discussion – DigCompEdu, which specifies twenty-two educator competences across six areas and a six-level progression, and TPACK, which situates technological knowledge in relation to pedagogical and content knowledge. Both describe what digital competence consists of, but neither prescribes how development towards it should be organised, which is the question the six approaches answer. Empirical work confirms the practical salience of these frameworks: Cabero-Almenara et al. [15] validated the DigCompEdu Check-In instrument with university teachers in Andalusia, while the reviews by Zhao, Pinto Llorente, and Sánchez Gómez [24] and by Esteve-Mon, Llopis-Nebot, and Adell-Segura [17] establish that research on university teachers' digital competence has concentrated on measuring perceived levels rather than on the methodology of development – the same asymmetry this study identifies in the Ukrainian literature.

A further international strand substantiates mechanisms the six approaches presuppose. Desimone [16] identifies the core features of effective professional development (content focus, active learning, coherence, duration, and collective participation) which correspond closely to the collective and practice-oriented dimensions argued for below, though her framework predates the current digital infrastructure. Macià and García [19] and Lantz-Andersson, Lundin, and Selwyn [18] review informal online communities and networks as sources of professional learning, showing that such structures are valued yet studied mainly through isolated case descriptions; Trust, Krutka, and Carpenter [23] and Trust, Carpenter, and Krutka [22] demonstrate empirically, in school and higher education settings respectively, that professional learning networks support affective, social, cognitive, and identity-related growth. This body of work substantiates the integrative and collective claims made below, but it is organised around the network as an object of study rather than around methodological approaches to development.

Taken together, the two groups are complementary but disconnected: Ukrainian scholarship substantiates each approach individually without relating them to international frameworks, while international scholarship specifies competences and documents mechanisms without articulating the methodological approaches that would organise their development. No source combines the six approaches into one interrelated framework – the gap this article addresses.

**The aim of the article.** The aim of the article is to characterise each approach and justify their combined applicability as an interconnected methodological basis for organising academic staff professional development.

## Methodology

The study is theoretical in character: it does not report survey, experimental, or observational data, but derives a methodological framework from the systematic analysis of published scholarship and current normative regulation. This design follows from the research problem itself, since the fragmentation identified above is a fragmentation of theory rather than of evidence, and is therefore addressed by conceptual synthesis.

The source base comprises twenty-four items published between 2006 and 2025. Thirteen are Ukrainian-language peer-reviewed articles, study guides, and collections of scholarly papers in pedagogy, together with one normative act – Order No. 1466 of the Ministry of Education and Science of Ukraine (2024), which approved the occupational standard "Teacher of a higher education institution" [8]. The remaining ten are international peer-reviewed publications: two competence frameworks [20; 21], three systematic reviews of research on university teachers' digital competence [17; 24] and on online teacher communities [18], and five empirical or conceptual studies of professional development and professional learning networks [15; 16; 19; 22; 23]. Sources were selected against three criteria: explicit treatment of at least one of the methodological approaches under consideration, or of a competence framework or developmental mechanism they presuppose; relevance to the professional development of teaching or academic staff; and applicability to the Ukrainian higher education context, whether through the institutional setting described or through the adaptation of international models to that setting. The international sources were retrieved from publications indexed in Web of Science and Scopus and were included where they addressed higher education teaching staff specifically.

Four methods were applied in combination. Analysis was used to isolate, within each source, the defining features attributed to a given approach – its central idea, its object of development, and the mechanisms it presupposes. The conceptual-terminological method served to establish how key notions, above all professional development, competence, digital competence, and integration, are defined across sources, and to reconcile differences in usage before the approaches could be compared. The comparative method was then applied across the six approaches in order to identify their distinguishing emphases and their points of convergence, particularly the role each assigns to digital resources, and to relate them to the international competence frameworks that describe the same field in different terms. Synthesis and generalisation were used to move from the separate characterisations to an argument about their combined applicability, that is, to establish whether the six approaches address complementary rather than competing facets of one developmental process. The unit of analysis throughout is the methodological approach itself, not the individual source, so that the account presented in the following section characterises each approach in turn, drawing on all sources that substantiate it, and considers in each case the mechanisms through which digital resources make its realisation possible.

## Research results

Identifying the theoretical foundations of academic staff professional development via digital resources calls for argumentation grounded in a defined set of methodological approaches. Analysis of the source base allows six approaches to be substantiated as an interrelated foundation: acmeological, competency-based, innovation-project, integrative, information-communication, and practice-oriented. Each is examined below, with attention to how digital resources enable its realisation.

The acmeological approach to the professional development of academic staff can be regarded as an orientation towards achieving the highest results in one's activity. Its essence lies in the fact that a teacher does not merely accumulate knowledge or refine individual skills, but strives towards professional peaks – mastery, creativity, leadership. As researchers state, acmeology as a scientific discipline studies the regularities of human development towards

maturity and the highest level within that development, analysing a person as an individual, a personality, and an active participant of labour and life activity capable of self-development, creativity, and self-organisation [5]. In this context, digital resources become a powerful instrument, opening access to the latest research, international practices, and professional communities, and allowing staff to orient themselves towards the best global standards.

It is also significant that the acmeological approach focuses attention on the development of personal qualities. A teacher must be independent, responsible, capable of reflection and self-control. Digital platforms support this: electronic portfolios, professional discussions, and online courses make it possible to analyse one's own achievements, receive feedback, and set new goals, forming a culture of continuous self-improvement in which striving for "acme" becomes an internal need. Professionalism from the acmeological standpoint is a process of improving professional activity, its outcomes, and personal growth; its result is an acmeological orientation of the personality, one component of which is the striving for professional success – achievement motivation, self-development, readiness for creative activity, and the capacity for reflection [5].

A further feature of this approach is the integration of individual and collective development. Staff reach professional peaks not in isolation but in interaction with colleagues, students, and international partners; online conferences, joint research projects, and professional networks combine personal growth with the development of the educational community. The approach also has a strategic dimension, orienting teachers towards a level of professionalism that secures universities' competitiveness in the global educational space; digital resources help integrate into international processes, adapt global digital-competence models, and disseminate research results.

Professional development via digital resources equally presupposes application of the competency-based approach, today considered one of the most vital for academic staff. Its central idea is that development cannot be reduced to accumulating knowledge alone, far more central is the ability to apply that knowledge in practical activity, so that competences are treated as an integrated outcome combining knowledge, abilities, skills, and values. Contemporary scholarship confirms this: a competency-based approach to learning presupposes acquiring not only theoretical knowledge but also practical skill in using digital technologies, meaning open educational-scientific information systems should offer courses that teach the use of digital tools for solving real educational problems, creative self-expression, and effective communication, not merely computer basics [13]. Digital resources become a key instrument for realising this approach, providing access to up-to-date materials and technologies and allowing teachers to develop digital, information-research, communicative, and innovative competences, so that professional growth occurs in the practical dimension too. Academic staff immediately integrate new knowledge, creating electronic courses, applying testing systems, and organising distance or blended learning.

The competency-based approach also accounts for individual needs: each teacher may prioritise research, methodological, or communicative competence, and digital resources support the individual trajectories through a wide range of courses and materials accessible at any time. Its value-related dimension likewise deserves emphasis – a teacher not only masters new technologies but forms a professional culture, ethical responsibility, and critical thinking, broadened through participation in international communities and global projects. The competency-based approach can thus be regarded as a contemporary and necessary methodological foundation, ensuring key competences, the integration of knowledge and values, and the individualisation and practical orientation of development, so that teachers gain readiness to act effectively within a digital educational environment.

Regarding the innovation-project approach, it can be viewed as one of the most promising [2]. Its essence is that genuine growth occurs not when a teacher merely assimilates new knowledge, but when they actively apply it in practice, creating their own educational or

research projects [1]. Under digitalisation, this approach acquires particular significance, since digital resources open wide opportunities for realising innovative ideas, collective work, and the dissemination of results. The innovation-project approach orients staff towards activity with a concrete outcome: developing an electronic course, creating interactive materials, or participating in international programmes or research projects. Digital platforms ease this considerably, providing access to databases, electronic libraries, project-management systems, and resources for joint work [12]. It also stimulates creativity: working on projects requires the search for new solutions and experimentation with methods and technologies. Digital resources make it possible to introduce contemporary formats (distance, blended, flipped-classroom) and apply multimedia and interactive platforms, forming innovative thinking and the capacity to adapt quickly [14].

This approach also has a collective dimension: staff work in teams with colleagues, students, and international partners, and digital resources create a favourable environment through online conferences, webinars, professional networks, and platforms for joint work, fostering a culture of cooperation. It also carries strategic significance for universities, since innovative projects raise institutional competitiveness, enable integration into the international educational space, and allow the dissemination of results, turning teachers into agents of change.

A further methodological approach deserving research attention is the integrative one. The integrative approach to the professional development of academic staff via digital resources rests on the idea of combining different forms, methods, and sources of learning into a single, holistic system. Its distinctive feature is that it is not confined to traditional educational programmes or individual innovative practices alone, but seeks to unite formal, non-formal, and informal learning, creating comprehensive conditions for a teacher's continuous development.

Applying the integrative approach makes it possible to combine classical forms of professional development with the new opportunities opened up by digital resources: staff can simultaneously take part in seminars, complete online courses, use electronic libraries, keep research blogs, or join professional communities, which makes development more flexible and multidimensional [4]. This contributes to a holistic professional competence, since, as one source puts it, integration in professional education is the process of establishing connections between structural components of content to form a holistic conception of the pedagogical profession, oriented towards the self-development of the future teacher's personality [3]. Teachers not only acquire new knowledge but learn to apply it, developing communicative skills, digital literacy, and research abilities, with digital resources serving simultaneously as a source of information, a platform for communication, and an instrument for practical application. The integrative approach also carries an important cultural and value dimension, combining national educational traditions with international practices and adapting global digital-competence models to the Ukrainian context; staff gain access to global standards while preserving their own professional identity.

Given the subject of this study, the information-communication approach to the professional development of academic staff is also argued for. It rests on the recognition that contemporary education is impossible without the effective use of information and digital technologies and communication tools. Its essence lies in forming the capacity of academic staff to work with information, to evaluate it critically, to disseminate and apply it in professional activity, and in developing communication skills within the digital environment. Information-communication technologies and tools are becoming ever simpler to use, oriented towards storing significant volumes of data, and designed so that a person can begin using them as quickly as possible for their own learning, professional needs, and leisure organisation [11].

The principal emphasis in applying the information-communication approach to professional development via digital resources is placed on the development of a teacher's

information literacy. Today, a teacher must be able to find the required data quickly, analyse it, and distinguish reliable sources from questionable ones. Digital resources provide access to electronic libraries, scientific databases, and educational platforms, allowing teachers to continually update their knowledge and stay abreast of the latest trends. In accordance with the tenets of the information-communication approach, a need is also identified for the development of digital competence: academic staff are called upon not only to use ready-made resources but also to create their own content (electronic courses, multimedia materials, interactive tasks etc.). Digital resources supply a wide range of tools for this, from learning-management systems such as Moodle and Google Classroom to platforms for creating presentations, video, or interactive exercises. The approach is also viewed through its practical dimension, since teachers can immediately apply the skills they acquire in their own activity: organising distance or blended learning, using electronic assessment systems, and maintaining constant contact with students through digital channels. This makes the educational process more flexible, accessible, and contemporary.

On this basis it may be concluded that the information-communication approach to the professional development of academic staff via digital resources can be regarded as one of the key approaches. It ensures the formation of information literacy and digital competence, creates conditions for effective communication, and enables the practical application of knowledge. As a result, teachers gain the opportunity to work within a contemporary digital educational environment, which determines the quality and competitiveness of the higher education system.

Regarding the practice-oriented approach to the professional development of academic staff via digital resources, it rests on the conviction that knowledge has value only when applied in real activity. Its central idea is that learning should be brought as close as possible to practice, and that a teacher's professional growth should occur through solving concrete tasks, working with real cases, and introducing innovations into the educational process. Above all, it should be noted that the practice-oriented approach directs academic staff towards the practical use of acquired knowledge: theoretical models and concepts become the basis for creating learning materials, organising classes, and developing methodological recommendations. Digital resources function here as an instrument enabling the rapid integration of new knowledge into practice, opening access to contemporary methods, electronic libraries, and platforms for creating interactive tasks and courses.

Among the aspects that deserve emphasis is that the practice-oriented approach fosters the formation of problem-solving skills. Academic staff face genuine challenges of the educational process, including student motivation, the organisation of learning in different formats, and the assessment of learners' outcomes. The use of digital resources helps in finding effective solutions: participating in professional forums, exchanging experience with colleagues, and applying innovative tools for communication and knowledge control. It is the practice-oriented approach, moreover, that carries a distinct innovative dimension: the practical activity of academic staff presupposes a constant search for new forms and methods of learning. Digital resources allow experimentation with different formats, from the flipped classroom to blended learning, and the use of multimedia tools, interactive platforms, and cloud services, which forms the capacity for creativity and adaptation to change. This is illustrated by a publication in which researchers identify a range of organisational forms of learning used in the professional development of future teachers, demonstrating the value of combining curricular and extracurricular activity so as to draw comprehensively on the potential of a higher education institution's academic environment; specific digital resources named for this purpose include [learningapps.org](https://learningapps.org), [prezi.com](https://prezi.com), [calameo.com](https://calameo.com), [wordart.com](https://wordart.com), [coggle.it](https://coggle.it), and [padlet.com](https://padlet.com), alongside educational information products such as websites, blogs, electronic manuals, games, exercises, web-quests, e-portfolios, and book trailers, which together form information, research, reflective, educational, and self-educational competences [10].

It is also important that the practice-oriented approach strengthens the connection between education and the professional environment. Academic staff can involve students in real projects, cooperate with employers, and integrate examples from practice into the educational process. Digital resources create the conditions for such integration, providing access to professional communities, online tools for project management, and platforms for communication with business and research institutions.

It is logical to conclude that the practice-oriented approach to the professional development of academic and research-teaching staff via digital resources may be regarded as one of the most effective. It ensures the practical orientation of learning, forms problem-solving skills, stimulates innovation, and strengthens the connection between education and the professional environment.

### Discussion

The characterisation set out above allows the six approaches to be considered jointly rather than severally. Each addresses a distinct facet of professional growth – orientation towards mastery, the practical application of knowledge, project-based innovation, the integration of learning formats, information literacy, and practical problem-solving – yet all six converge on digital resources as the infrastructure that makes their realisation possible in contemporary Ukrainian higher education.

This convergence is the principal finding of the study, and it stands in a particular relation to the reviewed literature. The sources analysed substantiate the approaches convincingly but separately: acmeology is developed as a theory of personal maturity and achievement motivation [5]; the competency-based approach is argued from the requirement that digital tools be applied to real educational problems rather than mastered as computer basics [13]; project and grant activity is treated as a formative mechanism in its own right [1; 2; 12; 14]; integration is defined as the establishment of connections between the structural components of professional content [3; 4]; information-communication competence is examined as an object of international policy comparison [11] and as a target of technology-mediated development [6]; and the resources of practice-oriented development are catalogued at the level of concrete platforms and educational products [10]. None of these sources is concerned with the relations between the approaches, and none treats digital resources as a shared condition of their realisation. The synthesis proposed here therefore extends rather than contradicts the reviewed scholarship. The same holds for the international literature, though for a different reason: DigCompEdu [21] and TPACK [20] specify what competences an educator should hold and how technological knowledge relates to pedagogy and content, but they are descriptive frameworks rather than accounts of how development towards those competences should be organised, and the reviews of research built on them report a concentration on measuring perceived competence levels [17; 24].

Three relations between the approaches emerge from the comparison and warrant emphasis. The first is dependency: the information-communication approach is not one option among six but a precondition of the remaining five, since electronic portfolios and professional networks (acmeological), digital course design (competency-based), project-management platforms (innovation-project), online formal and non-formal learning (integrative), and interactive task creation (practice-oriented) all presuppose the information literacy and digital competence that this approach forms. This dependency is consistent with the frameworks that place professional engagement and digital resource use at the foundation of educator competence [21]. The second is complementarity of orientation: the acmeological and competency-based approaches specify what development is directed towards – professional peaks and applicable competence respectively – whereas the innovation-project and practice-oriented approaches specify how it is achieved, through concrete products and real

professional tasks. The third is scope: the integrative approach operates at the level of the development system as a whole, uniting formal, non-formal, and informal learning, and thus supplies the frame within which the other five are combined rather than competing with them. The international evidence on informal online communities and professional learning networks supports this framing: such structures are valued precisely because they supply forms of learning that formal provision does not [18; 19], and they have been shown to support affective, social, cognitive, and identity-related growth among both school and university teachers [22; 23].

These relations carry practical implications for university management. If the six approaches are complementary in the manner described, then staff-development provision built on any one of them will be systematically incomplete: programmes grounded solely in competence frameworks risk neglecting motivation and the striving for mastery that the acmeological approach addresses, while programmes built around innovative projects alone risk excluding staff whose digital literacy has not yet been formed. The framework accordingly suggests that the design of digital-based development programmes should be assessed for coverage across all six approaches, and that the formation of digital competence should be sequenced ahead of, or in parallel with, the project and practice-oriented components that depend upon it. This is consistent with the requirement of the 2024 occupational standard that academic staff be able not only to organise their own development but also to support colleagues and initiate development projects [8], and with the finding that collective participation and sustained duration are among the core features of effective professional development [16].

The limitations of the study follow from its design. The framework is derived theoretically and has not been tested against the experience of practising staff; the source base, although it now includes international scholarship, remains anchored in Ukrainian pedagogical literature and one national normative act, so the weight assigned to each approach reflects that anchoring; and the study characterises the approaches without establishing their relative effectiveness, which cannot be determined from documentary sources alone.

## Conclusions

The analysis has shown that the professional development of academic staff via digital resources cannot be adequately grounded in any single methodological approach, but requires the deliberate combination of six interrelated ones. The acmeological approach orients staff towards mastery and self-development; the competency-based approach shifts the focus from accumulating knowledge to applying it; the innovation-project approach channels growth into concrete outcomes; the integrative approach unites formal, non-formal, and informal learning; the information-communication approach builds the digital competence without which the other five cannot function online; and the practice-oriented approach anchors all of this in the real problems of teaching. Digital resources are not incidental to any one approach: they are the shared infrastructure that makes each realisable at scale.

The synthesis offered here extends the existing literature, which has substantiated each approach largely in isolation, by demonstrating that the six form a single interrelated foundation. They address complementary facets of the same developmental process and reinforce one another when applied jointly, offering university management a coherent basis for designing digital-based development programmes rather than ad hoc initiatives.

Directions for further research follow from the limitations stated above. The first is empirical validation: surveying academic staff in order to establish how far the framework corresponds to their lived experience, and which combinations of approaches prove most effective in institutions of different type and size. The second is systematic mapping of the framework onto international digital-competence models such as DigCompEdu [21] and TPACK

[20], which describe the competences to be attained but not the methodology of attaining them. The third is the design and evaluation of staff-development programmes constructed on the framework, which would allow the contribution of each approach to be assessed against measurable outcomes.

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