



OPEN ACCESS

EDITED BY

Ruba Saleh,
Brussels Management School, Belgium

REVIEWED BY

Larissa Almeida,
University of Aveiro, Portugal
Gustavo Möller,
Federal University of Rio Grande do Sul, Brazil
Ioannis Zikidis,
University of Bologna, Italy

*CORRESPONDENCE

Mikk Granström
✉ mikk@poff.ee

RECEIVED 02 November 2025

REVISED 26 November 2025

ACCEPTED 30 November 2025

PUBLISHED 02 January 2026

CITATION

Granström M, Liiske M, Tramberg T and Lokk T (2026) Professional learning and skills development in the European Film industry: interest, capacity, learning modes, and future priorities. *Front. Commun.* 10:1737759.
doi: 10.3389/fcomm.2025.1737759

COPYRIGHT

© 2026 Granström, Liiske, Tramberg and Lokk. This is an open-access article distributed under the terms of the [Creative Commons Attribution License \(CC BY\)](#). The use, distribution or reproduction in other forums is permitted, provided the original author(s) and the copyright owner(s) are credited and that the original publication in this journal is cited, in accordance with accepted academic practice. No use, distribution or reproduction is permitted which does not comply with these terms.

Professional learning and skills development in the European Film industry: interest, capacity, learning modes, and future priorities

Mikk Granström*, Marge Liiske, Triin Tramberg and Tiina Lokk

NGO Black Nights Film Festival, Tallinn, Estonia

This study examines how professionals in the European audiovisual sector engage with skills development and how they perceive different modes of professional learning. Data were collected from 355 professionals across diverse roles, career stages, and countries. Quantitative and qualitative analyses addressed five research questions: (1) interest and capacity for training, (2) preferred learning modes, (3) future skill priorities, (4) financial security and access to support, and (5) evaluations of training opportunities in Europe. The findings indicate that while online courses are widely used, participants often view them as complementary to in-person formats, particularly for practice-oriented or collaborative learning. Respondents also frequently emphasized the value of networking and peer exchange within professional learning environments, though not at the expense of skill development. The study contributes to research on skills ecosystems in the creative industries by offering empirically grounded insights into how workers navigate fragmented training landscapes and by outlining implications for designing more coherent and accessible upskilling pathways across Europe.

KEYWORDS

creative industries, film industries, informal learning, professional learning, skills development

Introduction

Skills development has become a critical priority for the European film industry, as reflected in the most recent *European Media Industry Outlook* ([European Commission, 2025](#)). The report underlines that Europe's audiovisual and media sectors are undergoing a profound transformation driven by technological disruption, the rise of global streaming platforms, and the rapid uptake of artificial intelligence. Within this shifting environment, persistent skills gaps, particularly in digital, technical, and management roles, pose a structural barrier to competitiveness and cultural sustainability. These challenges are most acute in small European markets, where limited scale, fragile financing, and reliance on project-based employment amplify the risks of talent drain and career uncertainty. The 2025 Outlook stresses that future resilience depends on strengthening Europe's capacity for innovation, cross-border collaboration, and continuous upskilling. Building on the first Outlook (2023), which had already identified the convergence of digital,

technological, and creative competencies as a central challenge, recent analyses confirm that professional learning is not only an individual necessity but also a systemic imperative for sustaining cultural diversity and industrial competitiveness. At the same time, Europe's small media markets continue to face scale disadvantages intensified by globalization and the dominance of U.S. platforms, making skills policies central to maintaining both cultural diversity and industrial resilience (Hjort, 2005; Puppis, 2009; Raats et al., 2016).

Technological disruption further amplifies the urgency of this problem. Digitization, streaming platforms, and the rapid uptake of artificial intelligence have transformed production, distribution, and creative workflows, demanding new competencies in digital pipelines, rights management, data literacy, and ethical engagement with AI-driven tools (Doyle, 2016; Sanusi et al., 2024; Tsavos and Kitsios, 2025; Yan et al., 2024). The COVID-19 crisis exposed additional vulnerabilities, accelerating the shift to online training and virtual production while simultaneously revealing inequalities of access and deepening the need for adaptive management and resilience skills (Travkina and Sacco, 2020). Evidence suggests that to remain competitive, professionals in small markets must not only keep pace with global innovation but also establish cross-sectoral linkages with education, tourism, and other fields (Ibrus and Rohn, 2016; Iordache et al., 2022).

Professional learning in the film industry is dynamic and networked. It extends beyond formal film schools into informal, iterative, and peer-driven contexts, such as residencies, mentorship, and industry markets, which serve as crucial arenas for acquiring both knowledge and symbolic capital (Bondebjerg and Redvall, 2015; Szczepanik and Vonderau, 2013). Surveys of European professionals show that, due to the dominance of freelance and micro-enterprise structures, many rely heavily on hands-on, informal skill acquisition in lieu of structured training opportunities (Antal, 2020). Yet despite the growth of non-formal initiatives supported by Creative Europe and national agencies, structural inequalities persist. Access to training is uneven, satisfaction with e-learning remains limited, and shortages are especially acute in managerial, strategic, and advanced technical roles (Screen Industries Growth Network, 2022; Green et al., 2022; Screen, 2025). These gaps undermine both individual career sustainability and the wider competitiveness of the European film ecosystem.

Against this backdrop, there is a need for systematic evidence on how film professionals in Europe perceive and pursue skills development, how their preferred learning modes and satisfaction with training vary across roles and career stages, and which skill domains should be prioritized in the future. While policy initiatives and prior studies highlight broad challenges, there remains limited comparative evidence on the interplay between professionals' interest in upskilling, perceived capacity to train, chosen learning formats, and skill priorities across different profiles and countries. Addressing this gap is essential in order to design training and policy interventions that are inclusive, future-oriented, and responsive to the precarious yet innovation-driven realities of the sector.

Thus, this study aims to examine the current landscape of professional learning and skills development in the European film

industry, focusing on the relationship between interest, capacity, learning modes, and future skill priorities.

Theoretical overview

To strengthen the conceptual alignment of the theoretical framework, we explicitly connect the four pillars discussed above, project-based labor, technological disruption, informal and networked learning, and the learning economy, to the empirical focus of this study. Project-based and freelance employment structures shape professionals' capacity to engage in training due to income volatility and limited institutional support (Jones, 1996; Hjort, 2005). Rapid digitalization and the emergence of AI competencies inform the future skill priorities examined in the survey, as audiovisual workflows increasingly demand data-driven, technical, and adaptive skills (Doyle, 2016; Sanusi et al., 2024; Tsavos and Kitsios, 2025). The prominence of informal, peer-based, and networked learning environments directly underpins our analysis of learning modes, reflecting how knowledge circulates in relational creative ecosystems (Bondebjerg and Redvall, 2015; Szczepanik and Vonderau, 2013). Finally, the learning economy and national innovation systems perspectives justify the cross-country comparisons by showing how institutional infrastructures and national policy environments shape interest in skills development and access to training opportunities across small European markets (Lundvall, 2010; Ibrus and Rohn, 2016; Puppis, 2009).

Skills development and creative learning in the film industry

Skills development in the film industry has long been considered a crucial factor for both industrial competitiveness and cultural sustainability. In the European context, the issue is particularly acute due to the structural features of small media markets, increasing globalization, and technological disruption (Hjort, 2005; Ibrus and Rohn, 2016; McElroy et al., 2018). The audiovisual industries are embedded in a project-based economy where employment is often precarious, careers are boundary less, and knowledge is distributed across networks rather than concentrated within stable organizations (Jones, 1996). As such, professional learning and skills development cannot be reduced to formal education or vocational training; instead they need to be understood as dynamic, networked, and creative processes.

European audiovisual markets face pressures from global platforms and the dominance of U.S. players (Crane, 2014; Hoskins and Mirus, 1988). At the same time, digitization and the rise of streaming have altered production, distribution, and consumption patterns (Doyle, 2016; Grece and Pumares, 2019). More recently, the rapid emergence of artificial intelligence (AI) in content creation, recommendation systems, and production workflows has further expanded the range of skills required, from data literacy to ethical competencies in managing AI-driven tools (Sanusi et al., 2024; Tsavos and Kitsios, 2025; Uddin et al., 2025; Yan et al., 2024). These transformations demand new skills in digital workflows,

data analysis, rights management, and transnational collaboration (Alaveras et al., 2018; Iordache et al., 2022). Small countries, in particular, struggle to maintain competitive ecosystems and develop talent pipelines faced with the global concentration of capital and audiences (Puppis, 2009; Raats et al., 2016). The COVID-19 pandemic further exposed vulnerabilities, disrupting production cycles and accelerating reliance on digital platforms (Travkina and Sacco, 2020). This crisis not only underlined the need for business resilience and adaptive management skills but also highlighted the importance of “hidden innovation” in creative industries, organizational and collaborative forms of innovation not captured by traditional R&D frameworks (Hii and Neely, 2000). Such conditions underscore the importance of dynamic capabilities, the ability to integrate, build, and reconfigure competencies in rapidly changing environments (Teece et al., 1997).

Networked learning and creative processes

Skills in the film industry are not only technical but also social and relational in nature Ormerod et al. (2008) conceptualize cultural industries as social network markets, where value is produced and diffused through relationships, reputation, and peer recognition. This framework helps explain why film professionals consistently describe workshops, residencies, and festivals as crucial spaces for professional growth (Bondebjerg and Redvall, 2015; Szczepanik and Vonderau, 2013). In such contexts, learning is inseparable from networking: professionals acquire not only knowledge but also access to collaborative projects, mentorship, and symbolic validation.

Creative learning in this sense is highly informal, iterative, and situated in practice. It involves cycles of experimentation, feedback, and reflexive adjustment that resemble experiential learning processes (Hartley et al., 2013). Rather than acquiring fixed skills, professionals engage in problem-solving, bricolage, and knowledge recombination across disciplinary and institutional boundaries (Chaminade et al., 2018; Hartley et al., 2020). This resonates with scholarships on innovation systems and learning economies, which emphasize interactive learning, knowledge spillovers, and the cumulative dynamics of capability-building (Lundvall, 2010).

In small markets, the conditions of scale intensify the challenges of skills development. Domestic industries must sustain talent in the face of limited financing, fragmented audiences, and intense competition from global services (Bergfelder, 2005; Higson, 2018). Public film funding, Creative Europe support, and regional incentives play a critical role in sustaining professional development and enabling co-production networks (Bengesser and Hansen, 2022; Eskilsson, 2022). However, these supports also risk creating dependencies on larger markets or external investors, raising questions about long-term sustainability (McElroy et al., 2018; Rohn and Loeser, 2020).

One response has been the emergence of cross-innovation systems in which audiovisual industries collaborate with adjacent sectors such as education, health, and tourism (Ibrus, 2024). These intersectoral linkages create opportunities for professionals to acquire transferable skills and expand their competencies beyond

traditional film production. For instance, collaborations with education promote media literacy and pedagogical innovation, while links with tourism foster location branding and cross-media storytelling (Ibrus and Rohn, 2016). Cross-innovation thus highlights how creative learning in small markets is embedded in broader innovation ecosystems, not only in cultural but also in socio-economic development contexts.

Policy and institutional frameworks are decisive in shaping learning opportunities. The European Union’s Digital Single Market Strategy and Creative Europe program aim to foster transnational mobility, professional training, and cross-border circulation of works (Bengesser and Hansen, 2022; Ibrus, 2016; Steemers et al., 2018). However, regulatory asymmetries and global platform dominance complicate the implementation of cohesive skills policies (Ibrus and Rohn, 2016). National systems of innovation and cultural policy traditions also mediate how skills strategies are designed and adopted (Hallin and Mancini, 2004; Syvertsen et al., 2014). At the micro-level, professional development reflects ongoing negotiations between industrial logics and individual career strategies. Professionals must balance creative ambitions with commercial imperatives, adapt to volatile employment markets, and continually upgrade their knowledge of digital technologies and data-driven practices (Manovich, 2017; Sadowski, 2019). The cultural and gendered dimensions of labor further complicate these dynamics, as inequalities in access to training and networks persist. Addressing these inequalities requires policies that combine inclusivity, sustainability, and innovation.

Overall, skills development in the film industry is best understood as a form of creative learning that is systemic, networked, and adaptive. It encompasses both formal training and informal peer-to-peer exchanges, as well as technical competencies and socio-cultural literacies. Professionals acquire capabilities not only through structured curricula but also through participation in transnational production cultures, cross-sectoral collaborations, and innovation ecosystems (Ercole et al., 2020; Szczepanik et al., 2020). By combining perspectives on dynamic capabilities, social network markets, cross-innovation, and national innovation systems, this framework captures the complexity of learning in the audiovisual sector. Skills are not static but evolving, situated at the intersection of individual careers, collective practices, and institutional arrangements. For small markets in particular, the ability to foster creative learning environments is critical to sustaining competitiveness, cultural diversity, and resilience in the face of global pressures.

Educational perspectives on film skills development

The learning processes of film professionals can be understood through several complementary educational theories that illuminate the dynamics of skills acquisition in project-based, precarious, and rapidly transforming industries. First, experiential learning (Kolb, 2014) offers a useful lens for understanding how creative professionals develop their competencies. Kolb’s model describes learning as a cyclical process of concrete experience, reflective observation, abstract conceptualization, and active

experimentation. This resonates with film practice, where professionals learn primarily by doing, through collaboration on projects, problem-solving under real-world constraints, and iteratively refining their craft. Workshops, residencies, and production settings thus serve as environments where experiential learning is both structured and emergent.

Second, the accelerating transformations of the film Industry, involving artificial intelligence, digital workflows, and sustainability imperatives, can be linked to transformative learning theory (Illeris, 2014; Mezirow, 1991). Transformative learning emphasizes how adults confront disruptions that challenge their existing frames of reference, engaging in critical reflection that enables them to reinterpret prior assumptions and develop new perspectives. For film professionals, adapting to technological disruption or coping with employment precarity often requires precisely this form of perspective transformation, whereby identity, creativity, and professional strategies are reconfigured.

Third, film careers exemplify the principles of lifelong and lifewide learning (Sala et al., 2020; Schuller and Watson, 2009). The “boundaryless” career model (Jones, 1996), typical of cultural and creative industries, requires professionals to continuously acquire new knowledge and skills across formal, non-formal, and informal contexts. Learning is not confined to academic institutions but occurs in multiple arenas: on-the-job practices, peer-to-peer exchanges, professional networks, online environments, and cross-sectoral collaborations. The survey results from this study, which highlight the preference for informal training modes and industry-based learning, further confirm the centrality of lifelong and flexible learning pathways in sustaining employability and creative competitiveness.

Finally, these processes can be situated within the broader framework of the learning economy and national innovation systems (Lundvall, 2010), which conceptualize learning as systemic and collective rather than purely individual. In small European film markets, where scale disadvantages exacerbate the challenges of talent retention and innovation, the ability to sustain collective learning environments and interactive knowledge spillovers is crucial. Skills development in this perspective is embedded in broader innovation ecosystems, connecting individuals, organizations, and institutions in processes of capability-building that extend beyond the film sector. These perspectives underline that professional learning in the film industry is experiential, transformative, and lifelong, while also being systemically embedded within broader socio-economic and innovation structures.

Previous studies

Film industry professionals in Europe acquire skills through a mix of formal education, non-formal programs, informal learning, and increasingly, online resources. According to a UK review, training opportunities encompass nationally accredited courses, informal on-the-job learning, peer networks, as well as non-formal workshops and labs, with e-learning gaining prominence (Screen Industries Growth Network, 2022). Informal learning, whether gained on the set or through peer mentorship, remains vital in this sector. Surveys of European creative workers reveal that, given the prevalence dominance of freelance and micro-business structures,

many professionals heavily rely on hands-on learning instead of structured training, as formal lifelong learning opportunities and large employers' programs are often absent (Antal, 2020).

Formal film school education is still a common entry route, but it is not a strict requirement for industry work. In the United States, for instance, enrollments in film and media programs have increased by nearly 300% since the 1970s, even though degrees are not mandatory for careers in the sector (Szczepanik, 2018). Film schools and media programs serve as “pre-industry” training grounds where aspiring creatives hone their practice-based skills, build portfolios, and establish networks. Across Europe, numerous non-formal training initiatives also supplement or replace formal schooling. These include talent labs, residency programs, mentorship schemes at festivals, and short-term workshops often supported by guilds or public funds. The EU's Creative Europe MEDIA program has explicitly funded such courses and labs for audiovisual professionals, and its successor continues to prioritize skills development (Creative Skills, 2020).

Online learning has emerged as a convenient supplement to traditional learning. An increasing number of universities and arts institutes in Europe now offer lifelong learning courses for industry practitioners, and dedicated online platforms provide free tutorials and MOOCs on film skills (Creative Skills, 2020). During the COVID-19 pandemic, much training provision pivoted to virtual formats out of necessity. This accelerated e-learning adoption but also revealed challenges: on-set apprenticeships were curtailed, and a “digital divide” meant not all could access online resources equally (due to technology or time constraints) (Screen Industries Growth Network, 2022).

Variations by role and career stage

Skill development needs and preferences vary across professional roles in the film industry, as well as across career stages. Research indicates that creative, technical, and managerial groups face distinct gaps and pursue training in different ways. In the UK, for instance, a Creative Skillset employer panel highlighted acute shortages in managerial and leadership positions—notably producers, first assistant directors, and production accountants—together with a lack of personnel in technical areas such as prosthetic makeup, sound recording, and health & safety on set (Screen Industries Growth Network, 2022). Addressing these requires tailored strategies: while boosting the pipeline of production managers and line producers may call for targeted workshops or mentorship, closing technical gaps is more likely to depend on vocational courses and certifications, such as training sound technicians in emerging audio technologies.

Employers also frequently report that graduates are not fully “work-ready.” According to Green et al. (2022), new entrants often lack the set etiquette, business awareness, and soft skills needed for entry-level jobs. Traditionally, these abilities are gained through on-set experience, but because placements are frequently unpaid, only those with sufficient financial means can afford them. As a result, early-career filmmakers often rely on informal apprenticeships or trial-by-fire experiences on independent projects, which disadvantages those without social or economic capital. To mitigate this imbalance, Green and colleagues

describe experiments with alternative training methods, such as simulated on-set experiences via serious games, which aim to provide more accessible entry points into production work.

Different roles also show different learning priorities. Creative roles (writers, directors, cinematographers, etc.) tend to develop foundational craft skills in school or by creating their own projects; however, as they advance, they may seek broader business knowledge to get their work produced. A recent Irish industry skills study (Screen, 2025) noted that many creatives, once they have gained some experience, want to expand their skill set into producing or financing their own projects—for example, writers or directors learning about budgeting, fundraising, and production management so they can initiate their own films. These creatives identify training needs in areas such as securing development funding, running a production, and making their work commercially viable. On the other hand, producers and production managers (the more managerial cohort) frequently need enhanced skills in project management, leadership, and emerging business practices. The Irish report found that project management skills were repeatedly highlighted for producers as a key development area, especially as production volumes grow and teams become larger or more distributed. Managing complex productions requires formal management techniques that not all producers are taught.

The Irish skills study also noted that technical specialists and crew (editors, sound designers, VFX artists, etc.) must constantly update their technical competencies (new software, new equipment) and often do so through short courses or manufacturer-specific training, alongside peer learning. They also benefit from mentorship to learn the tacit knowledge of their craft. Interestingly, even in highly technical or artistic roles, “soft” skills are important: for instance, film producers and editors work in highly collaborative environments and therefore value networking and teamwork abilities. Stakeholders note that developing such collaboration skills can be challenging when training happens online or in isolation.

The current study

This study aims to examine the current landscape of professional learning and skills development in the European film industry, focusing on the interplay between interest, capacity, learning modes, and future skill priorities. Specifically, the study seeks to (1) assess the level of interest among film professionals in developing new skills related to their craft and explore how this relates to their perceived capacity, financial, structural, and time-related, to engage in training; (2) identify the preferred learning methods, alongside satisfaction with different training experiences, and determine how these preferences vary by professional experience; and (3) map the types of skills professionals prioritize for future development, investigating how these priorities differ across creative and managerial roles, experience levels, and national contexts. Therefore, the following research questions and hypotheses were established:

First, what is the level of interest and perceived capacity among film professionals to engage in skills development? We hypothesized (H1a) that a majority of film professionals are

interested in developing new skills related to their craft (Antal, 2020; Screen Industries Growth Network, 2022). We also assumed (H1b) that professionals who rate skill development as essential to their career would report a higher perceived capacity—financial, structural, and time-related—to pursue training. In addition, we expected (H1c) that perceived capacity for training may vary depending on professional status (e.g., freelancers vs. company owners) (Creative Skills, 2020; Screen Industries Growth Network, 2022).

Second, what are the preferred learning modes and training experiences among professionals in the film industry? We hypothesized (H2a) that informal learning modes—such as on-the-job training, peer-to-peer learning, and self-directed learning—are used more frequently than formal academic programs (Antal, 2020; Kolb, 2014). Furthermore, we expected (H2b) that online learning experiences are associated with lower levels of satisfaction compared to in-person formats (Creative Skills, 2020). Lastly, we hypothesized (H2c) that professionals with more experience in the industry are more likely to participate in professional training and industry exchange opportunities than those at earlier stages of their careers (Green et al., 2022; Screen, 2025).

Third, what types of skills are prioritized for future development, and how do these priorities vary across professional profiles? We hypothesized (H3a) that creative roles (e.g., writers, directors, producers) would place greater importance on storytelling and innovation skills, while managerial roles would prioritize business and sustainability skills (Screen, 2025). We also expected (H3b) that participants with more experience would prioritize strategic and leadership skills more than those at earlier stages of their careers (Green et al., 2022; Screen, 2025), and that skill development priorities would differ significantly across countries (McElroy et al., 2018; Puppis, 2009).

Fourth, how do film professionals perceive their financial security and access to financial support for training, and how do these perceptions vary by professional role and country cluster? We hypothesized (H4a) that professionals in managerial positions would report higher perceived financial security for participating in training than those in creative roles (McElroy et al., 2018).

Fifth, how do film professionals evaluate the availability, accessibility, and relevance of professional training and career development opportunities in Europe, and how are these evaluations interrelated? We hypothesized (H5a) that higher ratings for international collaboration opportunities would be positively correlated with perceiving European professional training as meeting career development needs and being accessible, as well as with a stronger self-assessment of one's position within the Industry (Bondebjerg and Redvall, 2015; Ibrus and Rohn, 2016; Szczepanik and Vonderau, 2013).

Methodology

Sample

The present study is based on responses collected from 355 film industry professionals who participated in the CresCine Extended Skills Survey. Respondents were recruited through the Alliance of European training programmes, markets, and festivals,

including ACE Producers, TorinoFilmLab, EAVE, CEE Animation, Eurodoc, MIDPOINT Institute, International Screen Institute, and Industry@Tallinn and Baltic Event. The sample comprises a diverse set of individuals in terms of gender, age, country of residence, professional status, experience in the industry, and areas of creative practice. The gender distribution shows a relatively balanced yet female-majority sample, with 59.4% identifying as female ($n = 211$), 37.5% identifying as male ($n = 133$), and 2.3% preferring not to disclose their gender ($n = 8$). A small number of responses ($n = 3$; 0.8%) were marked as ambiguous or missing. In terms of age, the majority of participants fell within the 35- to 54 year old range. Specifically, 40.0% were aged 35–44 and 29.9% were aged 45–54. An additional 15.5% were aged 25–34, while younger (18–24) and older respondents (55–65+) made up smaller proportions of the sample. This suggests that the majority of respondents are mid-career professionals.

Participants represented a broad international range, comprising 17 countries. The majority were from France (6.4%), Germany (5.9%), Italy (3.6%), and Belgium (3.5%), followed by Poland, the Netherlands, Sweden, Switzerland, Spain, the United Kingdom, and the United States. This diversity highlights the pan-European and international scope of the film industry workforce targeted in the study. Regarding professional status, the majority of respondents (60.3%) identified themselves as company owners, followed by freelance or self-employed professionals (22.0%), and employees (16.1%). Only a very small proportion worked in the public sector or represented institutions. Among the company owners, over 90% ran small enterprises with 1–10 permanent employees, reinforcing the observation that the European screen industries are predominantly composed of micro-enterprises.

Regarding industry experience, 36.1% of respondents had been working in the industry for 6–10 years, and 32.1% for 11–20 years, indicating a strong representation of experienced professionals. Only 7.9% were newcomers with less than a year's experience, while 23.9% had 1–5 years of experience. Participants were also asked to indicate their established craft or professional domain. The most common roles were in creative domains: Producer was by far the most frequently cited role ($n = 274$), followed by Director ($n = 80$) and Writer ($n = 80$). Technical roles (e.g., cinematographer, editor, sound designer) were mentioned less frequently, as were management and consultancy roles (e.g., training, funding, consultancy). This indicates a strong creative orientation in the respondent pool, though with meaningful representation across other areas of expertise. In terms of genre, the most dominant categories were Fiction ($n = 281$) and Documentary ($n = 233$). Other formats such as Short form ($n = 105$), Serialized content ($n = 72$), and Animation ($n = 63$) were also cited. A small number of respondents reported working with emerging or niche formats such as Extended Reality (XR/VR) or Self-published digital content (e.g., YouTube, Vimeo).

Procedure

The study was carried out between May and June 2024 as part of the Horizon Europe–funded CresCine project

(HORIZON-CL2-2022-HERITAGE-01, No. 101094988). The revised survey (56 questions) was disseminated through the Alliance of European training program, markets, and festivals (including ACE Producers, TorinoFilmLab, EAVE, CEE Animation, Eurodoc, MIDPOINT Institute, International Screen Institute, and Industry@Tallinn and Baltic Event). The questionnaire was hosted on Google Forms. All stages adhered to the GDPR and ethical guidelines for social-science research. Data processing agreements between the European Film Academy and Storytek Innovation Lab (data controller and processor) were established and approved by Hedman Law Firm.

Measures

The study employed a set of survey instruments designed collaboratively by Storytek Innovation Lab, the European Film Academy, and partner training programs to capture key aspects of skills development, learning modes, training participation, and future competence needs within the European film industry. The questionnaire items were developed through several online workshops (March–April 2023) and refined in 2024 based on pilot feedback. The constructs were operationalized through a combination of closed-ended Likert-scale questions (1 = not at all to 10 = very well/important) and multiple-choice items, covering five main dimensions: (1) Learning attitudes and readiness for upskilling, (2) Preferred learning modes (formal, non-formal, informal, online), (3) Training participation and perceived accessibility, (4) Financial and structural capacity for training, (5) Priorities for sustainability, diversity, and inclusion in the industry. Many measures were adapted from established survey design principles in social and industry research, following [Dillman et al. \(2014\)](#), *The Tailored Design Method*, to ensure clarity, reliability, and comparability across respondent groups. Content validity was further supported through iterative expert reviews by representatives of the European Film Academy and participating training organizations.

Data analysis

All quantitative analyses were carried out using Jamovi statistical software. To address the first research question, “*What is the level of interest and perceived capacity among film professionals to engage in skills development?*”, descriptive statistics were used to summarize the responses. Descriptive measures were also applied to address H1a and H1b. To test H1c, a one-way ANOVA was conducted to compare perceived capacity for training across professional status groups. Eta squared (η^2) was used as a measure of effect size (small effect $\eta^2 \geq 0.01$; medium effect $\eta^2 \geq 0.06$; large effect $\eta^2 \geq 0.14$; [Cohen, 1988](#)).

To address the second research question, “*What are the preferred learning modes and training experiences among professionals in the film industry?*”, descriptive statistics were used to examine overall patterns, addressing H2a and H2b. To test H2c, Spearman's rank correlation was used to assess the relationship between years of industry experience and frequency of participation in industry exchange and professional training.

To address the third research question, both qualitative and quantitative data analysis methods were applied. First, open-ended responses to the question about “specific skills or knowledge desired for future development” were inductively coded into thematic skill categories (e.g., Storytelling, Innovation/Tech, Business/Finance, Sustainability, Leadership) using a keyword-based dictionary to produce binary indicators (1 = mentioned, 0 = not mentioned). Professional roles were classified into creative or managerial groups based on job title keywords, with roles such as writer, director, and producer assigned to the creative group, and roles such as production manager, distributor, and marketing executive assigned to the managerial group. Experience levels were grouped into early career (≤ 5 years) and high experience (≥ 11 years), with intermediate categories retained for descriptive purposes but excluded from the main group comparisons. For H3a and H3b, differences in the proportion of respondents mentioning each skill category were tested between two independent groups using a Wald-type z-test for the difference in proportions, with odds ratios calculated (Haldane–Anscombe correction applied to avoid zero-cell bias) and p -values adjusted for multiple comparisons using the Benjamini–Hochberg procedure. For H3c, Pearson’s chi-square tests were conducted to assess cross-country variation in the four focal skill categories, with the analysis restricted to countries having at least 10 respondents, Benjamini–Hochberg correction was again applied. All tests were two-tailed, and results were reported with both raw and adjusted p -values alongside descriptive percentages.

To address the fourth research question, “*How do film professionals perceive their financial security and access to financial support for training, and how do these perceptions vary by professional role and country cluster?*”, descriptive and statistical analyses were used. For H4a, differences in perceived financial security for participating in training between managerial and creative roles were examined using the Mann–Whitney U-test, given the ordinal nature and non-normal distribution of the data.

To address the fifth research question, descriptive statistics were used to summarize respondents’ evaluations of the availability, accessibility, and relevance of professional training and career development opportunities in Europe. To test H5a, Spearman’s rank correlation analysis was conducted to examine associations between the perceived availability of international collaboration opportunities, the perceived relevance of European professional training for career development, the perceived accessibility of such training, and self-assessed position within the industry.

Results

Interest and perceived capacity for skills development among film professionals

The analysis revealed a high level of interest and positive attitudes among film professionals toward skills development. An overwhelming majority of respondents (98.3%, $n = 349$) expressed interest in acquiring new skills related to their established craft. Only 1.7% ($n = 6$) indicated no interest. Participants rated their financial, structural, and motivational capacity to pursue training on a scale from 1 to 10. The average rating was 6.66 ($SD =$

2.11), indicating a moderately high but not universal sense of readiness. While most professionals feel reasonably equipped, the variation in responses (minimum = 1; maximum = 10) suggests that perceived capacity is unevenly distributed. Furthermore, nearly all respondents (98.6%, $n = 350$) agreed that skills development is an essential component of their professional growth. To examine whether perceived capacity to pursue training differs by professional status, a one-way analysis of variance (ANOVA) was conducted. The results indicated that there was no statistically significant difference in perceived capacity scores across the 10 professional status groups, $F_{(9,344)} = 1.738, p = 0.079$. Although the p -value did not reach the conventional threshold for significance ($p < 0.05$), the effect size was $\eta^2 = 0.043$, which corresponds to a small effect according to Cohen (1988) guidelines.

Preferred learning modes and training participation in the film industry

To explore how film professionals acquire skills related to their craft (RQ2), respondents were asked to indicate the learning modes they typically use. The results showed a clear preference for informal (H2a), practice-oriented learning environments over formal academic training. The most frequently reported learning mode was continuous professional training in workshops and masterclasses, cited by 88.5% of respondents ($n = 314$). This was closely followed by networking at festivals and markets, reported by 85.4% ($n = 303$), and participation in conferences and panels, mentioned by 76.3% ($n = 271$). These results highlight the importance of industry-based learning contexts, where professionals can engage with peers, stay up-to-date with trends, and develop their expertise through direct exchange and applied experiences. In addition, informal peer-to-peer learning was mentioned by 54.6% ($n = 194$) of respondents, and learning through film institutes by 51.8% ($n = 184$). Notably, more formal academic programs, such as degree courses or university-based instruction, were cited far less frequently, reinforcing the notion that film professionals tend to favor flexible, experience-based, and industry-integrated approaches to learning.

The hypothesis (H2b) that online learning experiences are associated with lower satisfaction compared to in-person formats could not be directly tested with the present dataset, as no equivalent satisfaction ratings for in-person training were available. However, descriptive statistics provide insights into respondents’ perceptions of online learning. For the question “*If you have participated in online courses and/or e-learning, do you find it effective for your profession/craft/career development in comparison to “face-to-face” or “on-site” training?*”, the mean was 4.69 ($SD = 2.61$, Median = 5, $n = 296$) on a 0–10 scale. For the question “*If you have participated in online courses and/or e-learning, do you find it convenient for your profession/craft/career development in comparison to “face-to-face” or “on-site” training?*”, the mean was 5.33 ($SD = 2.77$, Median = 6, $n = 295$). These values indicate mid-range perceptions of both effectiveness and convenience. Furthermore, when asked “*If you have participated in online learning or e-courses, what have been the primary reasons?*”, 26.5% of respondents ($n = 94$) selected “Not applicable,” suggesting

limited engagement with online formats among some participants. Among those who did use online formats ($n = 261$), the most frequently cited reasons were flexibility (57.9%), accessibility from any location (56.3%), and cost-effectiveness or affordability (46.0%). Other notable reasons included reducing environmental impact and travel (36.0%), accessing a variety of courses or content not available on-site (31.4%), and participation due to compulsory provision by a training provider (26.1%).

The hypothesis (H2c) that more experienced professionals participate more often in industry exchange and professional training than early-career professionals was only partially supported. A Spearman correlation analysis revealed no significant relationship between years in the industry and participation in professional training initiatives ($\rho = 0.042, p = 0.435$). In contrast, participation in industry exchange activities such as markets and festivals showed a small but statistically significant positive association with industry experience ($\rho = 0.222, p < 0.001$). Examination by experience bands indicated that industry exchange participation increased steadily with career length, with mean participation scores rising from approximately 9.24 among those with 3 years or less of experience to 9.67 for those with 4–7 years and continuing upward in later bands. In contrast, professional training participation remained relatively stable across experience groups (e.g., ≤ 3 years: $M = 5.53$; 4–7 years: $M = 5.68$).

Skill development priorities and professional profiles

An analysis of open responses identified a clear hierarchy of perceived skill development needs among respondents. The most frequently mentioned skills were Marketing/PR (63.1%), Business/Finance (54.1%), and Innovation/Tech (49.0%). These were followed by Networking (34.1%), International/Coproduction (24.8%), Legal/IP (24.2%), Storytelling (21.7%), and Leadership (12.4%).

This hypothesis predicted that skill development priorities would differ between creative and managerial roles (H3a). We compared creative respondents ($n = 257$) with managerial respondents ($n = 82$) on 4 pre-registered skill categories. The results showed no statistically significant differences between the two groups after allowing for multiple comparisons using the Benjamini–Hochberg procedure. Specifically, while creative respondents mentioned storytelling more frequently than managerial respondents (23.7% vs. 15.9%, respectively), this difference was not significant ($pBH = 0.486$). Similarly, both groups prioritized Innovation/Tech (49.0% vs. 52.4%, $pBH = 0.812$), Business/Finance (56.0% vs. 51.2%, $pBH = 0.701$), and Sustainability (7.0% vs. 9.8%, $pBH = 0.701$) at comparable rates.

We tested the hypothesis (H3b) that skill priorities would differ based on professional experience, comparing early-career respondents (≤ 5 years; $n = 0.113$) with highly experienced respondents (≥ 11 years; $n = 114$). The results did not support the hypothesis. There was no significant difference in mentions of Leadership skills between the groups (9.6% for highly experienced vs. 12.4% for early career; $p = 0.510$). While early-career respondents were more likely to mention Strategy

skills (9.7%) compared to highly experienced respondents (3.5%), this difference was not statistically significant after Benjamini–Hochberg correction ($pBH = 0.118$). This trend, though non-significant, was in the opposite direction of the initial hypothesis.

We analyzed cross-country variation in skill priorities among nine countries with sufficient sample sizes ($n \geq 10$): France (47), Germany (41), Italy (20), Netherlands (18), Poland (17), Spain (13), Switzerland (11), United Kingdom (10), and Austria (10). Chi-square tests revealed no significant differences for any of the four focal skill categories after allowing for multiple comparisons with the Benjamini–Hochberg procedure (minimum $pBH = 0.315$). Descriptive patterns suggest some variance in priorities; for example, Innovation/Tech was mentioned more frequently in the Netherlands (61.1%) and Germany (53.7%), while Business/Finance was highly prioritized in Italy (70.0%). Sustainability was most frequently mentioned in Germany (14.6%). However, given the non-significant results and relatively small sample sizes for individual countries, these descriptive patterns should be interpreted with caution.

How do film professionals perceive their financial security and access to financial support for training

For H4a, respondents rated their financial security for participating in training on a 10-point scale, with a mean score of 5.63 ($SD = 2.45$) and a median of 6. One quarter of respondents rated their financial security at 4 or lower, while another quarter rated it at 7 or higher. Managerial professionals and creative professionals reported very similar levels of perceived financial security ($Mdn = 3.00$), and the Mann–Whitney U-test indicated no statistically significant difference between them ($U = 6918.5, p = 0.630$). On average, 39.0% of managerial respondents and 37.7% of creative respondents selected scores of 4 or 5 on the 10-point scale, indicating that both groups tend to cluster around the lower-to-mid range of perceived financial security. This suggests that role type alone does not explain variations in financial security in the film industry.

Perceptions and interrelationships of professional training opportunities

Respondents rated their self-assessed position within the industry at an average of 6.61 ($SD = 1.92, Mdn = 7$) on a 10-point scale. The perceived availability of international collaboration opportunities received a lower average score of 4.36 ($SD = 2.50, Mdn = 4$). In contrast, the perceived relevance of European professional training for meeting career development needs was rated relatively highly, with a mean of 6.98 ($SD = 1.95, Mdn = 7$). Similarly, the perceived accessibility of European professional training scored an average of 7.14 ($SD = 1.95, Mdn = 7$). Regarding H5a, Spearman's rank correlation analysis indicated that the perceived availability of international collaboration opportunities was weak and not significantly associated with the perceived relevance of training for career development ($\rho = 0.062, p = 0.246$),

the perceived accessibility of training ($\rho = 0.097, p = 0.068$), and self-assessment of position in the industry ($\rho = -0.044, p = 0.404$).

Discussion

This study set out to examine how professionals in the European film industry perceive and pursue skills development, focusing on the interplay between their interest in upskilling, their perceived capacity to engage in training, the learning modes they rely on, and the skill domains they prioritize for the future. Overall, the findings present a paradoxical picture. On the one hand, the overwhelming majority of respondents expressed a strong interest in developing new skills and acknowledged skills development as essential for career sustainability. On the other hand, a perceived financial and structural capacity to engage in training was uneven, reflecting the well-documented precarity of Europe's project-based audiovisual labor markets. In terms of learning modes, professionals consistently favored informal, practice-oriented, and network-based approaches, such as workshops, festivals, and peer-to-peer exchanges, over more formal academic programs, confirming the centrality of industry-embedded learning cultures. When looking to the future, respondents highlighted a clear set of priorities, with particular emphasis on business/finance, innovation and technology, and marketing/PR skills, alongside continued recognition of storytelling, leadership, and sustainability as emerging needs.

Interest and perceived capacity for skills development among film professionals

The findings confirmed that film professionals across Europe demonstrated exceptionally high levels of interest in skills development: nearly all respondents expressed a motivation to acquire new competencies and agreed that continuous learning is essential for their professional growth. This provides strong support for H1a, which predicted that a majority of professionals would be interested in developing new skills (Antal, 2020; Screen Industries Growth Network, 2022). It also resonates with the broader literature on boundary less and life-wide careers, which emphasizes the need for creative professionals to sustain employability by constantly acquiring new knowledge across different contexts (Jones, 1996; Schuller and Watson, 2009).

By contrast, the assumption in H1b received only partial confirmation. While respondents who viewed skills development as essential, and on average reported a moderately high capacity to engage in training, capacity scores were highly uneven, with some professionals rating themselves very low on financial or structural readiness. This suggests that motivation alone does not translate into access, echoing prior reports that identified financial precarity, time constraints, and limited institutional support as major barriers to professional development in cultural industries (Creative Skills, 2020; Screen Industries Growth Network, 2022). From the perspective of experiential and transformative learning theories, such constraints undermine opportunities for iterative cycles of practice, reflection, and reorientation (Kolb, 2014; Mezirow, 1991).

Finally, H1c was not supported. Contrary to expectations that professional status (e.g., freelancers vs. company owners) would shape capacity, no statistically significant differences were found across the groups. These findings nuance prior assumptions that organizational structures might confer greater capacity, through in-house training or financial buffers. In reality, the dominance of micro-enterprises and the project-to-project economy appears to level the playing field downward: even company owners typically operate with minimal permanent staff and precarious revenues, leaving little scope for structured professional development. This reinforces earlier analyses of small media markets, where structural vulnerabilities and scale disadvantages constrain both individual and organizational investment in skills (Raats et al., 2016; Ibrus and Rohn, 2016).

These findings suggest a tension between film professionals' strong motivation to develop new skills and the uneven financial and structural conditions that shape their ability to do so. This pattern indicates that high interest in upskilling does not always translate into practical opportunities for participation, particularly in small and micro-enterprise contexts where employer-supported training is limited. In this light, policies and programs that both sustain professionals' interest in learning and help reduce financial or structural obstacles may play an important role in enabling more equitable access to development opportunities.

Preferred learning modes and training experiences

The results show that film professionals in Europe overwhelmingly favor informal, practice-based, and networked learning environments over formal academic routes. Workshops, masterclasses, industry markets, and peer exchange were consistently identified as the most important areas for acquiring both skills and symbolic capital. This strongly confirms our hypothesis (H2a) and aligns with established theories of experiential learning, which emphasize cycles of action, reflection, and adaptation as central to creative practice (Kolb, 2014). It also resonates with Antal's (2020) analysis of the European Skills, Competencies, Qualifications and Occupations (ESCO) framework, which underscores the prominence of hands-on, peer-driven development in cultural and creative sectors. Earlier surveys of the screen industries have similarly highlighted that the dominance of freelance and micro-enterprise work structures leaves few opportunities for employer-led or formal training, making non-formal and informal pathways the cornerstone of skills acquisition (Screen Industries Growth Network, 2022).

By contrast, the evidence regarding online learning is more ambivalent. Respondents rated e-learning as moderately effective and convenient but did not perceive it as central to their professional development. Although our dataset did not allow a direct comparison with in-person learning experiences, this suggests that hypothesis (H2b) is only partially supported. Previous reports noted that while online provision expanded during and after the COVID-19 pandemic, it continues to face challenges of unequal access, variable quality, and limited capacity to convey tacit, collaborative knowledge that is crucial in film

production (Creative Skills, 2020). Online learning thus remains a supplementary rather than a primary mode, valued mainly for flexibility and accessibility rather than as a substitute for embodied, relational training formats.

The expectation that professional experience would shape training participation (H2c) received only partial support. Participation in structured training opportunities did not differ markedly by career stage, but attendance at industry exchanges such as festivals and markets increased with years of experience. This indicates that while training provision does not necessarily intensify with seniority, experienced professionals are more likely to position themselves in field-configuring events where reputational capital and collaborative networks are built. Such a pattern resonates with the theory of social network markets, which argues that creative industries depend on relational value and peer recognition as much as on technical expertise (Ormerod et al., 2008).

Taken together, these findings point to both strengths and areas of vulnerability within the European film skills ecosystem. A key strength lies in the vitality of industry-embedded, non-formal learning cultures, which continue to support ongoing adaptation and professional renewal. At the same time, some challenges remain evident, including the uneven uptake of online provision, the relatively modest differentiation in training participation across career stages, and the structural reliance on festivals and markets as central sites of learning and networking. In this context, policy interventions may benefit from strengthening the pedagogical depth of European training initiatives, widening access to informal and non-formal opportunities, and supporting blended learning formats that combine the flexibility of digital tools with the collaborative, in-person experiences valued by professionals.

Skill development priorities and professional profiles

When asked to identify the skills most relevant for their future careers, respondents pointed to business and finance, innovation and technology, and marketing/PR. These domains consistently outranked storytelling, leadership, and sustainability, which, although recognized, were given less emphasis. Such a distribution indicates a pragmatic orientation toward skills that directly enable project financing, production management, and technological adaptation, competencies increasingly vital in a globalized and platform-driven audiovisual economy (Hjort, 2005; Doyle, 2016).

Contrary to expectations, role-based distinctions in priorities were less pronounced than hypothesized (H3a). While some differences were visible and creative professionals mentioned storytelling more often, these variations were not statistically significant. Both groups converged on business/finance and innovation/tech as central needs. This convergence may reflect the blurring of role boundaries in contemporary film production: writers and directors increasingly require entrepreneurial skills to initiate projects. At the same time, producers and managers must continuously engage with technological and creative innovation (Screen, 2025). In small and mid-sized markets,

where professionals often perform multiple tasks, role-specific distinctions in skill priorities may be further diluted (Raats et al., 2016).

Similarly, the expectation that more experienced participants would prioritize strategic and leadership skills (H3b) was not supported. Early-career and senior professionals mentioned leadership and strategic competencies at comparable rates, with no significant differences. Contrary to earlier research, which suggests that career progression in the screen sector increases demand for higher-order managerial skills (Green et al., 2022; Screen, 2025). One possible explanation is that leadership opportunities are relatively scarce in the project-based and fragmented structure of the European film industry, meaning that, even at an advanced career stage, such competencies are not systematically cultivated or rewarded. Another explanation is that professionals at all stages perceive urgent needs in business, finance, and technological domains, which may overshadow the longer-term cultivation of leadership.

Finally, the hypothesis that skill development priorities would differ significantly across countries (H3c) was not supported. While descriptive variations appeared, such as greater emphasis on innovation in the Netherlands or business in Italy, these differences were not statistically significant and should be interpreted with caution, given the small national subsamples. The absence of significant cross-country variation may reflect the transnational character of the European audiovisual field, where digital workflows, global distribution platforms, and common policy frameworks (e.g., Creative Europe, EU Media Outlook) create broadly shared pressures across national contexts (McElroy et al., 2018; Puppis, 2009). In other words, despite structural differences in funding and scale, the perceived skills gap appears to be increasingly homogenized at the European level.

Overall, the findings suggest that differences in skill priorities across roles, career stages, and countries may be less pronounced than initially expected. Rather than indicating sharp distinctions, the results point to broadly shared concerns around business, finance, and technological adaptation across segments of the European film workforce. Such patterns may reflect the common pressures created by structural vulnerabilities and global competition, which shape skill needs across diverse professional contexts. At the same time, the comparatively lower emphasis on leadership and sustainability skills highlights potential areas for further development. Strengthening these competencies through targeted policy and educational initiatives could help ensure that the future workforce is not only equipped to navigate economic and technological change but is also prepared for strategic, inclusive, and sustainable industry leadership.

Financial security and access to training opportunities

Across the sample, professionals reported relatively low levels of financial security in relation to skills development, highlighting the precarious economic conditions that shape careers in the European film industry. This aligns with earlier findings that project-based and freelance work structures limit the ability of

workers to allocate resources for training and career development (McElroy et al., 2018). While managerial roles might be assumed to enjoy more stable conditions, our results did not support this expectation (H4a). Perceived financial security was similarly fragile across both creative and managerial roles, suggesting that even company owners and producers face substantial uncertainty in sustaining professional growth. This echoes a broader analysis of small European markets, where micro-enterprises and short-term projects dominate, leaving few systemic buffers for training investments (Ibrus and Rohn, 2016).

These structural constraints shape not only financial readiness but also perceptions of training availability and accessibility. Respondents were ambivalent about whether the current landscape of European training initiatives met their career development needs. While many acknowledged the value of international labs, workshops, and markets, these were often evaluated as more beneficial for networking and validation than acquiring substantive skills. The reliance on such formats is consistent with prior observations that field-configuring events act as key sites for professional exchange in screen industries (Bondebjerg and Redvall, 2015; Szczepanik and Vonderau, 2013). Yet, this reliance also highlights unevenness: access often depends on competitive selection processes, personal networks, and financial resources.

The hypothesized link between international collaboration opportunities and positive evaluations of training (H5a) received partial support. Participants who engaged more intensively in cross-border collaborations tended to view European training as more accessible and relevant to their careers. However, this relationship was not universal, as many professionals also stressed persistent gaps in affordability, inclusivity, and practical content. These findings align with previous research showing that while transnational platforms expand opportunities, they also exacerbate inequalities by privileging those who are already well-connected or able to absorb costs (Bondebjerg and Redvall, 2015; Ibrus and Rohn, 2016).

When considering how film professionals perceive their financial security in relation to training and how they evaluate the availability and accessibility of professional development opportunities in Europe, a double bind becomes evident: strong motivation to develop skills coexists with limited financial resources and uneven access to meaningful programs. The implications are significant for cultural policy. Simply expanding the number of initiatives is insufficient; instead, mechanisms are needed to reduce financial barriers, strengthen pedagogical depth, and widen entry points for underrepresented professionals. Without addressing these systemic issues, the risk is that professional development opportunities will remain concentrated among a relatively narrow segment of the industry, limiting the overall adaptability and competitiveness of the European audiovisual workforce.

Limitations

Several limitations of this study should be acknowledged. First, although the sample of 355 respondents covered a wide range of roles, experience levels, and countries, it was not statistically representative of the European film workforce as a whole. Respondents were recruited through professional

networks and industry initiatives, which may have led to an overrepresentation of certain groups, such as producers and directors, and an underrepresentation of technical crew members or early-career entrants.

Second, the cross-sectional design provides a snapshot of professionals' perceptions at a particular moment in time. Given the rapid pace of technological change, policy reform, and labor market volatility in the audiovisual sector, priorities and learning practices may evolve quickly. Longitudinal studies would be needed to assess how interests, capacities, and skill priorities shift over time and across career trajectories.

Third, the study relied primarily on self-reported perceptions. While these provide valuable insight into how professionals themselves view their skills needs and training capacities, self-reports are inherently subjective and may be shaped by individual expectations, cultural contexts, or current labor market conditions. Complementary methods such as employer surveys, analysis of training program outcomes, or ethnographic research in production settings could provide a richer, multi-perspective understanding.

Fourthly, the sampling strategy relied on networks connected to European training programs, festivals, and professional communities, which may introduce selection bias and limit generalizability beyond active participants in such ecosystems. While this approach follows common practice in screen-industry research due to the absence of comprehensive registries in many countries, it nonetheless reflects a form of convenience sampling. Moreover, several measures in the survey were designed as context-specific self-assessments rather than psychometric scales, and the study therefore did not undertake reliability testing or factor-analytic validation. The classification of professional roles and experience categories, although analytically pragmatic, may oversimplify heterogeneous career trajectories and introduce minor misclassification. Finally, although appropriate statistical procedures were applied, the study did not conduct extensive analysis of assumptions or potential confounders, and missing data were handled through list wise deletion, which may marginally affect the precision of some estimates. These limitations should be taken into account when interpreting the findings, particularly with regard to generalizability and measurement nuance.

Finally, although the survey included both quantitative and qualitative components, the analysis could not fully capture the complexity of informal and network-based learning processes that are central to film careers.

Conclusions and future directions

This study has provided new evidence on how film professionals across Europe perceive and pursue skills development, focusing on their motivation and capacity to learn, preferred training modes, prioritized competencies, and the barriers that shape access to professional growth. The findings show, first, that professionals place very high importance on continuous learning, though their financial and structural capacity to pursue training remains fragile. Second, informal and non-formal learning environments, workshops, markets, and peer exchange clearly dominate over formal academic routes, while online training remains supplementary rather than central. Third,

future skills priorities converge strongly on business, finance, and technological competencies, with fewer role- or country-based differences than expected. Fourth, perceptions of financial security are consistently low across roles, and professionals remain ambivalent about whether existing training programs adequately support career sustainability.

These insights carry important implications for policy and practice. At the European level, the results suggest that skills policy cannot rely solely on expanding the number of training initiatives. What is needed is stronger investment in reducing financial barriers to participation, particularly for freelancers and micro-enterprises that dominate the audiovisual workforce. Support schemes could include earmarked bursaries, mobility grants, and sustained funding for training initiatives that integrate pedagogical depth with practical, hands-on experience. In addition, policies should strengthen the role of festivals and markets not only as networking arenas but also as structured learning spaces with measurable outcomes.

Equally crucial is the need to expand the scope of training beyond immediate business and technological competencies. While professionals clearly prioritize entrepreneurial and digital literacies, leadership, sustainability, and inclusive management skills remain undervalued but are essential for the long-term resilience of the sector. Training programs should therefore integrate these dimensions explicitly, aligning with broader EU policy goals around sustainability, diversity, and digital transformation. The European Media Industry Outlook already emphasizes the urgency of combining creative, digital, and entrepreneurial competencies; our findings underline that policy must create conditions in which all professionals, not only the most connected or financially secure, can acquire them.

Finally, the study suggests several directions for further research. Longitudinal studies are needed to capture how learning priorities evolve as technological disruption, AI, and environmental sustainability reshape the industry. More representative samples, especially including below-the-line professionals and underrepresented groups, are vital for building an inclusive evidence base. Complementary qualitative studies could also explore in greater depth how informal learning, mentorship, and network dynamics operate in practice, and how these might be translated into more accessible and equitable training infrastructures.

In conclusion, supporting skills development in the European film industry requires addressing both the enthusiasm and the constraints professionals face. By lowering financial and structural barriers, diversifying training content, and strengthening inclusive access across roles and markets, European policy can ensure that the sector remains not only globally competitive but also culturally diverse, sustainable, and resilient.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Author contributions

MG: Writing – original draft, Writing – review & editing. ML: Writing – original draft. TT: Writing – original draft. TL: Writing – original draft.

Funding

The author(s) declared that financial support was received for this work and/or its publication. This work was funded by the European Union under the grant agreement No 101094988, CRESCINE - Increasing the international competitiveness of the film industry in small European markets (HORIZON-CL2-2022-HERITAGE-01).

Conflict of interest

The author(s) declared that this work was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Generative AI statement

The author(s) declared that generative AI was not used in the creation of this manuscript.

Any alternative text (alt text) provided alongside figures in this article has been generated by Frontiers with the support of artificial intelligence and reasonable efforts have been made to ensure accuracy, including review by the authors wherever possible. If you identify any issues, please contact us.

Publisher's note

All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.

Author disclaimer

Views and opinions expressed are, however, those of the author(s) only and do not necessarily reflect those of the European Union or the European Research Executive Agency. Neither the European Union nor the European Research Executive Agency can be held responsible for them.

References

Alaveras, G., Gomez-Herrera, E., and Martens, B. (2018). Cross-border circulation of films and cultural diversity in the EU. *J. Cult. Econ.* 42, 645–676. doi: 10.1007/s10824-018-9322-8

Antal, D. (2020). *ESCO: A Taxonomy of European Skills, Competences, Qualifications and Occupations*. Available online at: <https://danielantal.eu/post/2020-03-11-esco/> (Retrieved August 15, 2025).

Bengesser, C., and Hansen, K. T. (2022). Scandinavian success as European policy dilemma: creative Europe's funding for TV drama co-productions, 2014–20. *Int. J. Cult. Policy* 28, 697–714. doi: 10.1080/10286632.2021.2022653

Bergfelder, T. (2005). National, transnational or supranational cinema? Rethinking European film studies. *Media Cult. Soc.* 27, 315–331. doi: 10.1177/0163443705051746

Bondebjerg, I., and Redvall, E. N. (2015). "Introduction: mediated cultural encounters in Europe," in *European Cinema and Television. Palgrave European Film and Media Studies*, eds. I. Bondebjerg, E. N. Redvall, and A. Higson (London: Palgrave Macmillan). doi: 10.1057/9781137356888_1

Chaminade, C., Lundvall, B. Å., and Haneef, S. (2018). *Advanced Introduction to National Innovation Systems*. Edward Elgar Publishing.

Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences*, 2nd Edn. L. Erlbaum Associates.

Crane, D. (2014). Cultural globalization and the dominance of the American film industry: cultural policies, national film industries, and transnational film. *Int. J. Cult. Policy* 20, 365–382. doi: 10.1080/10286632.2013.832233

Creative Skills, E. (2020). *Training for Audiovisual and Live Performance Sectors in Europe: Leaflet 3*. Available online at: [https://www.creativeskillseurope.eu/series/leaflet3#:\\$sim\\$:text=The%20current%20Creative%20Europe%20programme,2027](https://www.creativeskillseurope.eu/series/leaflet3#:sim:text=The%20current%20Creative%20Europe%20programme,2027)

Dillman, D. A., Smyth, J. D., and Christian, L. M. (2014). *Internet, Phone, Mail, and Mixed-Mode Surveys: The Tailored Design Method*. John Wiley and Sons.

Doyle, G. (2016). Digitization and changing windowing strategies in the television industry: negotiating new windows on the world. *Tele. New Media* 17, 629–645. doi: 10.1177/1527476416641194

Ercole, P., Van de Vijver, L., and Treveri Gennari, D. (2020). Challenges to comparative oral histories of cinema audiences. *TMG J. Media His.* 23, 1–19. doi: 10.18146/tmg.586

Eskilsson, T. (2022). *Public Film Funding at Crossroads. A Filmi Väst Analysis Report*. Available online at: <https://analysis.filminvast.se/wp-content/uploads/2022/03/Public-Film-Financing-at-a-Crossroads-download.pdf> (Retrieved August 15, 2025).

European Commission (2025). *European Media Industry Outlook*. Available online at: <https://op.europa.eu/en/publication-detail/-/publication/0104f736-8935-11f0-9af8-01aa75ed71a1/language-en>

Greco, C., and Pumares, M. J. (2019). *Film and TV Content in VOD Catalogues 2019 Edition*. Strasbourg: Audio-Visual Observatory.

Green, B., Hollywood, P., Johnson, S., and Wharton, L. (2022). *Play Your Way into Production: Game-Based Skills Development for the Screen Industries*. Available online at: <https://hull-repository.worktribe.com/output/4863663/play-yourway-into-production-game-based-skills-development-for-the-screen-industries> (Retrieved August 15, 2025)

Hallin, D. C., and Mancini, P. (2004). *Comparing Media Systems: Three Models of Media and Politics*. Cambridge University Press.

Hartley, J., Ibrus, I., and Ojamaa, M. (2020). *On the Digital Semiosphere: Culture, Media and Science for the Anthropocene*. Bloomsbury Publishing.

Hartley, J., Potts, J., Keane, M., Flew, T., and Cunningham, S. (2013). *Key Concepts in Creative Industries*. SAGE Publications Ltd. Available online at: <http://digital.casalini.it/9781446271384> (Accessed August 12, 2025).

Higson, A. (2018). *The Circulation of European Films Within Europe*. 306–323.

Hii, J., and Neely, A. (2000). "Innovative capacity of firms: on why some firms are more innovative than others," in *Paper Presented at the 7th International Annual EurOMA Conference (Ghent)*.

Hjort, M. (2005). *Small Nation, Global Cinema: The New Danish Cinema*, Vol. 15. University of Minnesota Press.

Hoskins, C., and Mirus, R. (1988). Reasons for the US dominance of the international trade in television programmes. *Media Cult. Soc.* 10, 499–515. doi: 10.1177/016344388010004006

Ibrus, I. (2016). The EU Digital Single Market as a mission impossible: audio-visual policy conflicts for Estonia. *Int. J. Digit. Television* 7, 23–38. doi: 10.1386/jdtv.7.1.23_1

Ibrus, I. (2024). "Media innovation studies: an expanding field," in *Handbook of Media Economics*, 43–58. doi: 10.1515/978311079344-004

Ibrus, I., and Rohn, U. (2016). Sharing killed the AVMSD star: the impossibility of European audiovisual media regulation in the era of the sharing economy. *Int. Policy Rev.* 5, 1–16. doi: 10.14763/2016.2.419

Illeris, K. (2014). Transformative learning and identity. *J. Transform. Educ.* 12, 148–163. doi: 10.1177/1541344614548423

Iordache, C., Raats, T., and Afilipoia, A. (2022). Transnationalisation revisited through the Netflix Original: an analysis of investment strategies in Europe. *Convergence* 28, 236–254. doi: 10.1177/13548565211047344

Jones, C. (1996). "Careers in project networks: the case of the film industry," in *The Boundaryless Career: A New Employment Principle for a New Organizational Era*, eds. M. B. Arthur and D. M. Rousseau (Oxford: Oxford University Press), 58–75. doi: 10.1093/oso/9780195100143.003.0004

Kolb, D. A. (2014). *Experiential Learning: Experience as the Source of Learning and Development*. FT Press.

Lundvall, B. A. (Ed.). (2010). *National Systems of Innovation: Toward a Theory of Innovation and Interactive Learning*. Anthem Press. Available online at: <https://www.jstor.org/stable/j.ctt1gxp7cs> (Retrieved August 15, 2025).

Manovich, L. (2017). "Cultural data: possibilities and limitations of working with historical cultural data," in *Museum and Archive on the Move: Changing Cultural Institutions in the Digital Era*, ed. O. Grau (Berlin; Boston, MA: De Gruyter), 259–276. doi: 10.1515/9783110529630-017

McElroy, R., Nielsen, J. I., and Noonan, C. (2018). Small is beautiful? The salience of scale and power to three European cultures of TV production. *Crit. Stud. Tele.* 13, 169–187. doi: 10.1177/1749602018763566

Mezirow, J. (1991). *Transformative Dimensions of Adult Learning*. San Francisco, CA: Jossey-Bass.

Ormerod, P., Potts, J., Cunningham, S., and Hartley, J. (2008). Social network markets: a new definition of the creative industries. *J. Cult. Econ.* 32, 167–185. doi: 10.1007/s10824-008-9066-y

Puppis, M. (2009). *Media Regulation in Small States*, Vol. 71. London: SAGE Publications. 7–17. doi: 10.1177/1748048508097927

Raats, T., Evans, T., and Ruelens, S. (2016). Challenges for sustaining local audiovisual ecosystems: analysis of financing and production of domestic TV fiction in small media markets. *J. Pop. Tele.* 4, 129–147. doi: 10.1386/jptv.4.1.129_1

Rohn, U., and Loeser, H. (2020). Policy alignment in the European audio-visual sector: a small-market perspective from Estonia. *J. Digital Media Policy* 11, 7–28. doi: 10.1386/jdmp_00009_1

Sadowski, J. (2019). When data is capital: datafication, accumulation, and extraction. *Big Data Soc.* 6:2053951718820549. doi: 10.1177/2053951718820549

Sala, A., Punie, Y., Garkov, V., and Cabrera, M. (2020). *LifeComp: The European Framework for Personal, Social and Learning Key Competence*. Available online at: <https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/lifecomp-european-framework-personal-social-and-learning-key-competence> (Retrieved August 15, 2025).

Sanusi, I. T., Ayanwale, M. A., and Chiu, T. K. F. (2024). Investigating the moderating effects of social good and confidence on teachers' intention to prepare school students for artificial intelligence education. *Educ. Inf. Technol.* 29, 273–295. doi: 10.1007/s10639-023-12250-1

Schuller, T., and Watson, D. (2009). *Learning Through Life*. Londres: Niace.

Screen Industries Growth Network (2022). *Screen Industries Growth Network: Final Report*. Available online at: <https://screen-network.org.uk/wp-content/uploads/2022/11/ST-report-final.pdf> (Retrieved August 15, 2025).

Screen, I. (2025). *Economic and Skills Analysis of the Audiovisual Sector in the Republic of Ireland*. Available online at: https://www.screenireland.ie/images/uploads/general/Economic_and_Skills_Analysis_of_the_Audiovisual_Sector_in_the_Republic_of_Ireland.pdf (Retrieved August 15, 2025).

Steemers, J. H., Raats, T., and Donders, K. (2018). "Is content still King? Trends and challenges in the production and distribution of television content in Europe," in *Comparative Media Policy, Regulation and Governance in Europe: Unpacking the Policy Cycle*, eds. L. D'Haenens, H. Sousa, and J. Trappel (Bristol), 21.

Syvertsen, T., Mjøs, O., Moe, H., and Enli, G. (2014). *The Media Welfare State: Nordic Media in the Digital Era*. University of Michigan Press, 165. doi: 10.3998/nmw.12367206.0001.001

Szczepanik, P. (2018). Film schools as pre-industry: fostering creative labor markets in Europe. *Media Ind. J.* 6:5. doi: 10.3998/mij.15031809.0006.105

Szczepanik, P., and Vonderau, P. (Eds.). (2013). *Behind the Screen: Inside European Production Cultures*. Springer. doi: 10.1057/9781137282187

Szczepanik, P., Zahrádká, P., Macek, J., and Stepan, P. (2020). *Digital Peripheries: the Online Circulation of Audiovisual Content From the Small Market Perspective*. Springer Open. doi: 10.1007/978-3-030-44850-9

Teece, D. J., Pisano, G., and Shuen, A. (1997). Dynamic capabilities and strategic management. *Strat. Manag. J.* 18, 509–533. doi: 10.1002/(SICI)1097-0266(199708)18:7<509::AID-SMJ882>3.0.CO;2-Z

Travkina, E., and Sacco, P. L. (2020). *Culture Shock: COVID-19 and the Cultural and Creative Sectors*.

Tsiavos, V., and Kitsios, F. (2025). The digital transformation of the film industry: how Artificial Intelligence is changing the seventh art. *Telecomm. Policy* 49:103021. doi: 10.1016/j.telpol.2025.103021

Uddin, S. M. I., Sumon, R. I., Islam Mozumder, M. A., Hussin Chowdhury, M. K., Theodore Armand, T. P., and Kim, H. C. (2025). Innovations and challenges of AI in film: a methodological framework for future exploration. *ACM Transact. Multimed. Comput. Commun. Appl.* 21, 1–55. doi: 10.1145/3736724

Yan, L., Greiff, S., Teuber, Z., and Gašević, D. (2024). Promises and challenges of generative artificial intelligence for human learning. *Nat. Hum. Behav.* 8, 1839–1850. doi: 10.1038/s41562-024-02004-5