



Leadership for a Digital Age: Whole-School Strategies to Enhance Media Literacy for All Students

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Abstract. This study addresses the challenge of fostering media literacy in schools as a set of human capabilities that supports both overall development and digital competence. While existing frameworks such as DigComp provide structured competence goals, they offer limited guidance on how these competences can be developed in age-appropriate ways and implemented effectively within school organisations. To address this gap, the study combines three perspectives: competence-based approaches to media literacy, a developmental model emphasising age-appropriate sequencing, and a Whole School Approach (WSA) focusing on systemic implementation.

The proposed framework conceptualises media literacy as a long-term developmental process, guided by principles such as prioritising analogue experiences before digital engagement and active, creative use before passive consumption. It operationalises implementation through a Whole School Approach that integrates leadership, learning processes, school culture, staff development, and community engagement. In doing so, the study offers a coherent model that links what media literacy entails, when it should be developed, and how it can be sustainably embedded in school practice.

By structuring and systemising rather than reducing complexity, the approach provides schools with an inclusive and equity-fostering framework for aligning competence goals, developmental needs, and organisational conditions. It thus contributes to bridging the gap between knowledge and behaviour in media education and supports the development of self-regulated, responsible, and creative citizens in the digital age.

Keywords: Whole-School Approach, Media Literacy, Age-Appropriate Learning, School Leadership.

1 Media Literacy in the Digital Age: Bridging Development, Competence, and School Practice

The digital age confronts school leadership with the challenge of designing and implementing strategies that enable K–12 students to develop their human capacities toward

both overall and digital competence rather than dependency [1]. While digital technology offers educational opportunities as a tool, its sustainable use presupposes a certain level of maturity [7]. Given its pervasive influence on cognitive, emotional, and social development, schools must take a clear position on two seemingly opposing tendencies.

On the one hand, they must stimulate the child's innate human potential—predating the digital age, following its own developmental logic, and not necessarily benefiting from early exposure to contemporary media technologies. This calls for a cautious stance toward digitalisation to safeguard health and wellbeing. On the other hand, schools must foster the development of active citizens in an increasingly digital world, ensuring their capacity to engage with digital technologies in a broad and meaningful sense. Reconciling these aims requires well-defined competence goals and appropriate implementation approaches. This is particularly relevant given that behavioural outcomes of media education tend to lag behind cognitive ones [30].

Media literacy is widely recognised as a key transversal competence, combining knowledge, skills, and attitudes to access, analyse, evaluate, and create media messages across diverse forms and contexts [4]. It inherently includes digital skills [22] and thus represents a core pedagogical objective centred on critical interpretation, evaluation, and content creation. It is often situated within the broader concept of media and information literacy (MIL), as defined in UNESCO's Global MIL Standards [23], and aligned with the notion of transliteracy [24], encompassing informational, media, and digital dimensions. Although these concepts extend beyond the digital domain, their scope can be illustrated through the five competence areas of the European Commission's DigComp framework [2]. However, while such frameworks provide structure and recognise that literacies develop progressively [23], they lack a precise developmental perspective. Addressing this gap, the present study shifts the focus from what should be done to when and how it should be achieved.

Building media literacy is, first, a long-term process requiring well-grounded developmental sequencing. A sequential model of age-appropriate media education can link two key aims: mitigating risks associated with early digital media use while fostering digital skills [6]. However, despite a shared emphasis on sequencing, existing models propose markedly different starting points for digital media use [25][26][27], underscoring the need for careful attention to developmental milestones. Placing health and wellbeing high among its priorities [20], the present study advances two age-appropriate guiding principles applicable throughout the K–12 period: analogue media education and exposure should precede digital, and active, creative engagement should precede passive consumption [7].

Second, media literacy spans multiple domains and involves diverse stakeholders, making it unsuitable as a one-off curricular topic. Instead, it requires a planned, systemic approach that rethinks leadership, vision-building, and organisational principles. This can be synthesised under the Whole School Approach (WSA) [8], originally developed in sustainable development education. Applied to media literacy, WSA touches upon frameworks such as DigCompOrg (emphasising leadership and collaborative culture) [28], the eSafety framework (building online safety capacity across the school community) [29], and the UKCIS framework (supporting cross-curricular planning for digital safety and responsibility) [26].

The study shows WSA can address implementation efforts in fostering media literacy—though not without challenges. Rather than simplifying, WSA introduces necessary complexity as a guiding framework [9]. It foregrounds: (i) holistic and systemic perspectives on equal and continuous media education; (ii) participatory, multi-stakeholder processes; and (iii) organisational interventions, including the proactive development of media competencies among students and staff, the integration of formal and informal learning, attention to institutional ethos and culture, engagement with parents and the wider community, and ongoing professional reflection and development in media use [9].

Paired with a conservative age-appropriate approach to media literacy [20], the above WSA components may also suggest ways to bridge the persistent gap between cognition and behaviour in media education. Individuals with weaker self-control are more likely to translate impulses into action despite knowing better, pointing to a cognition–behaviour gap driven by limited impulse regulation [31]. Younger children, in particular, tend to display more impulsive and less regulated behaviour, while research shows that the capacity to inhibit impulses develops gradually throughout childhood and adolescence [32], with environmental factors playing a decisive role [33]. These findings suggest that the gap between cognition and action may require stronger internalisation of beliefs and values, advanced organisational embeddedness, awareness of hidden curriculum, strong role-modelling, and reduced digital exposure at stages preceding adequate impulse control.

In identifying the potential of WSA for age-appropriate media literacy education, the study concludes by discussing critical requirements for its implementation.

The conceptual core of our research can be framed as a triangle that rests upon three key topics: (1) media literacy as a structured competence goal, (2) age-appropriate approach for all learners (age-appropriateness, inclusion, and equity of access), and (3) the whole-school implementation of relevant media literacy topics (organisational vision, strong stakeholder role, and structural embeddedness).

2 Competence Goals: Media Literacy and the Five DigComp Competence Areas

As media literacies have evolved from a traditional mass-media focus to integrated frameworks encompassing both analogue and digital media, the term media and information literacy (MIL) has gained broad usage. In its Global MIL Standards, UNESCO defines MIL as a set of competencies enabling individuals to access, understand, critically evaluate, use, and create information, and to act effectively within an ecosystem of content and communication services [6]. In educational policy and curricula, MIL often overlaps with media literacy [4][5]. For the purposes of this analysis, MIL is understood as an umbrella concept encompassing informational, media, and digital dimensions, while media literacy is treated as the core pedagogical objective focused on the understanding, critical evaluation, and creation of both analogue and digital media content.

Certain recent efforts to design media education frameworks have sought to align media literacy with the DigComp competence areas [8]. Although not limited to the digital domain, one such approach organises its topics across DigComp's five areas—albeit in a different order than DigComp 3.0—beginning with Health and Wellbeing (and Safety), followed by Problem Solving, (Digital) Content Creation, Information and Data Literacy, and Communication and Collaboration [13].

Given that DigComp 3.0 presents itself as technology-neutral and adaptable across educational, training, and employment contexts—while promoting a balance between online and offline activities [8]—it ultimately aims to support self-regulated individuals across both digital and non-digital environments, in line with the broader concept of media literacy.

That way the DigComp structure highlights the complexity of media literacy, suggesting its educational contribution across multiple domains. Indeed, neglecting competence areas such as e.g. health and wellbeing has been shown to impair focus, attention, sleep, academic outcome, mental health, and self-regulation [21][22][23]. Other threats include risks such as uncritical information use [24], unsafe and harmful media-driven interactions [25], consumption-driven use [26], and an inability to use media technologies as problem-solving tools [27]. Moreover, insufficiently developed media literacy—and the failure to address it—has adverse effects across educational contexts, including classroom learning, school climate, everyday social interactions, and home environments. Indeed, much of today's media use remains disconnected from educational or self-regulated purposes [28].

It is widely recognised that metacognitive self-regulation and resource-management strategies are essential for translating digital literacy into effective practice. These strategies support the development of resilient and responsible (...) citizens capable of navigating the ethical and practical challenges of the digital age [29].

2.1 Age-appropriate Media Literacy Approach

Different stages of human development call for different educational approaches. While age-appropriate introduction of digital technology in education has been suggested by the United Nations [30], UNESCO [31], the European Parliament [32], and sequential approach is also recommended by the Council of Europe's Digital Citizenship framework [12], DigComp addresses competence areas without explicitly incorporating age-related perspective [8].

This underlines the need for a more processual integration of the above perspective into media literacy education. The apparent tension between promoting health and wellbeing, which implies conservative use of digital media, on the one hand, and the practical development of digital skills, on the other, can be reconciled by keeping early childhood grounded in real-life, analogue experiences [33], while direct engagement with digital technology becomes beneficial only once a child has developed sufficient self-regulation in the analogue environment [34][35]. Only at that point is the young individual "able to understand media functioning, effects, and sensible dealing with it" [36]. In terms of digital technology use and exposure, the initial media literacy approach thus remains indirect and only turns direct in adolescence [37].

From this perspective, two guidelines for K–12 leadership can be derived, as conceptualised by Bleckmann [9]. First, analogue activity and exposure should precede digital: direct, multisensory experiences and interpersonal interaction form the basis for later digital competence and risk prevention. Second, active and creative engagement should precede passive consumption. Accordingly, children’s involvement in analogue media practices—such as drawing, counting, and reading to name but a few—should come before digital content creation and, in particular, the consumption of digital media. Such an approach differs clearly from other sequential (curricular) frameworks [11][12][16]. A strong grounding in the analogue environment also helps prevent early inequalities arising from unequal access to technology, ensuring more equitable media education opportunities. These can later be complemented by school-provided devices once structured digital media exposure is introduced.

Efforts to align media literacy with the above age-appropriate approach have led to the development of comprehensive curricular frameworks [13][38][39], one of which has been widely recommended to schools at the international level.

2.2 Whole School Approach: Leadership Framework to Implement Change

Regardless of style or structure, school leadership in general and principals in particular are central to shaping coherent perspectives, participation in, and implementation of change within the educational environment [40]. WSA frames these functions as part of planned organisational change integrating vision and proactive governance, curriculum, teaching and learning, professional development, stakeholder collaboration, as well as monitoring and evaluation [14]. Having emerged as a thinking tool for educational change, innovation, and school reform in response to global sustainability challenges [17], it is less suited to addressing isolated issues and more to supporting school responses to complex societal shifts that require changes in cognitive, emotional, and behavioural dimensions alike.

Media literacy is one such area [41]. As it has moved beyond traditional media, it has gained complexity and salience, becoming a core competence for citizenship, work, and everyday life [42]. While this shift is reflected in various implementation approaches, each addresses it differently: DigCompOrg and SELFIE [15] focus on building school capacity; UNESCO’s MIL Guidelines [6] adopt a competence-content logic; and DCE Planner [12] and UKCIS Education for a Connected World [11] provide curricular-developmental frameworks. Without adopting their specific prescriptions, our WSA-based approach integrates these perspectives into a systematic account of the school’s organisational context while preserving its inherent complexity.

From a leadership perspective, WSA decentralises authority and top-down approaches, while establishing system-wide participatory governance grounded in a clear shared perspective. Merging top-down and bottom-up paradigms, the framework can be operationalised through three interrelated leadership principles and five interconnected fields of implementation.

2.3 Leadership principles

i. Holistic, systemic, and sustainable vision

A WSA for media literacy requires leadership that articulates a holistic and developmentally grounded vision. There, media literacy is understood not merely as a set of digital skills, but as a broader configuration of human capabilities encompassing cognitive, social, ethical, and creative dimensions. Within this perspective, frameworks such as DigComp provide an important structure for defining competence areas [8], but they need to be embedded within a developmental understanding that takes into account thorough age-appropriate sequencing and the gradual maturation of learners [37][39][33].

This implies a long-term leadership orientation which recognises that media literacy is not treated as an isolated curricular topic, but as a continuous, gradual, and complex educational process with its own solid curricular basis [13]. Developmental principles—such as prioritising analogue experiences before digital engagement and active, creative use before passive consumption—serve as guiding orientations for designing comprehensive learning environments that support both wellbeing and competence development [9][2].

ii. Democratic and participatory processes

Given the cross-cutting nature of media literacy, its implementation cannot be achieved through top-down strategies alone. A WSA requires participatory and distributed forms of leadership that foster shared ownership among all stakeholders, including teachers, students, school leaders, and external partners such as e.g. parents [14].

At the same time, participation must be balanced with strategic direction. Effective leadership ensures coherence by aligning individual initiatives with a shared institutional vision, coordinating efforts across different domains, and preventing fragmentation. This balance reflects the need for both strong leadership and stakeholder responsibility in organisational change processes [15]. In this sense, participatory governance is not an end in itself, but a necessary condition for building commitment and enabling sustainable change.

iii. Systemic embedding in the school's educational practice

Beyond vision and participation, WSA requires the systematic embedding of media literacy into the structures and practices of the school. This involves transforming media literacy from a declared objective into a lived institutional reality.

Systemic embedding entails the integration of media literacy across curricular and extracurricular activities, organisational routines, and everyday practices. It requires alignment between policies, teaching practices, school culture, and stakeholder engagement, ensuring that media literacy is consistently reinforced across contexts [17]. In this way, media literacy becomes an integral part of the school's organisational fabric rather than a set of isolated initiatives.

Leadership must ensure that media literacy is embedded across all dimensions of school life, transforming it from a curricular topic into a lived institutional practice. Media literacy efforts shall become culture, practice and habit. Their implementation can be analysed across below five interconnected fields of implementation.

2.4 Fields of Implementation

i. **Pedagogy and Learning: formal and informal learning content and process**

Media literacy must be embedded across formal and informal learning processes, integrating the DigComp competence areas into developmentally appropriate learning sequences in and outside classroom settings. Media literacy shall be taught, practiced, and experienced. Active, student-centred approaches—such as discussion, problem-based learning, simulations, and communities of inquiry—have been shown to outperform more passive, lecture-based instruction [43]. Learning environments should prioritise production-oriented activities, critical analysis, and problem-solving, while recognising the importance of developmental sequencing [6][13][34]. In line with this, analogue experiences and forms of engagement can serve as a foundation upon which digital competencies are gradually built [9][2]. Such an approach supports both the acquisition of knowledge and skills as well as the development of self-regulated and responsible media attitudes. Early analogue media pedagogy prevents digital divide due to asymmetrical access, quality or ownership of technology. Subsequent introduction of direct media pedagogy, on the other hand, may serve equity with provision of school-owned devices, thus relieving the pressure of the BYOD approach, where different device quality, platform, and connectivity can translate into unequal learning opportunities [36].

ii. **Proactive leadership and coordination**

Effective implementation of age-appropriate media education requires proactive leadership and coordination that translate strategic vision into coherent institutional practice. This includes regular aligning of stakeholders, resources, and priorities across the organisation, as well as ensuring continuity over time. Leadership plays a key role in connecting different areas of activity, supporting collaboration, and maintaining a shared direction [15]. By balancing top-down guidance with distributed responsibility, it enables both coherence and flexibility, thereby reducing the risk of fragmented or short-term initiatives. In addition, strict, age-appropriate media pedagogy does not naturally emerge from IT industry dynamics and therefore requires proactive, principled school leadership to set limits, define purposes, and ensure that digitalization serves education and development rather than commercial agendas [44]

iii. **Turning media literacy efforts into culture and ethos of all involved**

What the school does in terms of media literacy is more important than what it teaches. A media-literate school is characterised by a coherent institutional culture in which norms, routines, and role modelling consistently reflect responsible, reflective, and purposeful media use. This includes addressing the hidden curriculum and ensuring that informal practices align with formal educational goals. A strong and consistent ethos supports the internalisation of values and helps bridge the gap between knowledge and behaviour, which has been identified as a persistent challenge in media education [3][18][19]. Walking the talk thus helps minimise the gap between espoused values and lived experience through the integration of formal and hidden curricula [45][46]. Such a framework is highly inclusive and fosters equality, with culture and ethos spanning across all stakeholder groups.

iv. **Continuous staff development and reflexivity**

Teachers and school staff play a central role in modelling and mediating media literacy. Continuous professional development is therefore essential, enabling educators to develop the necessary competences and pedagogical approaches [17]. Equally important is reflexive practice, which involves critically examining one's own media use, teaching strategies, and underlying assumptions. Through ongoing self-evaluation, peer exchange, and collaborative learning, educators can align their personal and professional practices and contribute to a coherent institutional approach. Reflexivity thus becomes a key mechanism for continuous improvement and adaptation.

v. **Involving Family, Local Community & Wider Society**

Media literacy extends beyond the boundaries of the school and is strongly influenced by practices in the home and wider community. Sustainable implementation therefore requires active engagement with families and external stakeholders, recognising them as co-educators rather than peripheral actors [17]. A lack of alignment between school and home environments can constitute a significant barrier to effective media education. Schools must thus adopt proactive strategies to foster communication, build shared understandings, and support parents in guiding children's media use. Fostering these links promotes the consistency and impact of media literacy efforts across contexts.

These dimensions are interdependent and require continuous reflection and adaptation, as media literacy development and its institutional implementation evolve over time.

3 **Discussion**

3.1 **Integrating Competence, Development, and Organisation**

Fostering media literacy in schools cannot be reduced to a single dimension. Existing approaches have advanced the field along three largely separate trajectories. Competence frameworks such as e.g. DigComp [8], DigCompOrg [15], and UNESCO's Global MIL Standards [6] define *what* media-literate citizens should know, understand and be able to do. Developmental perspectives, drawing on research on child development and self-regulation [9][2][18][19][20][13][34], clarify *when* forms of media engagement are pedagogically appropriate and when they risk undermining the capacities they are intended to build. The WSA, originating in the context of education for sustainable development [14][17], shows *how* such goals can be embedded in school organisation. While each perspective is substantial, each leaves a characteristic gap when applied to media literacy in isolation.

Competence frameworks provide structure but remain largely silent on developmental sequencing and organisational conditions; developmental models offer sequencing logic but do not readily translate into competence goals or institutional strategies; and WSA provides an implementation architecture without specifically addressing media literacy. As a result, schools are often left with competence goals they cannot sequence, developmental principles they cannot operationalise, or organisational structures lacking pedagogical direction. This fragmentation contributes to the persistent gap between

cognitive and behavioural outcomes in media education [3][5], as no single perspective addresses the conditions under which knowledge translates into practice.

The original contribution of this study lies in integrating the above perspectives into a coherent framework. By linking *what* (competence areas derived from DigComp and MIL), *when* (age-appropriate sequencing guided by analogue before digital and active before passive), and *how* (systemic implementation through leadership principles and fields of practice), it presents media literacy as a long-term, organisationally embedded developmental process. Rather than proposing new competencies or checklists, it clarifies the relationships between existing approaches and their implications for school practice. This integration informs how implementation complexity can be understood and led, as explored in the following sections.

3.2 Whole School Approach as a Framework for Manageable Complexity

The integration outlined above does not simplify media literacy but makes its complexity explicit, with direct implications for school leadership. Here, the WSA plays a central role: rather than offering shortcuts, it structures complexity across five fields of practice and three leadership principles, turning a diffuse mandate into a set of organisational decisions. In this sense, WSA does not reduce complexity but makes it manageable [17]. This distinction is critical, as attempts to simplify media literacy—by reducing it to a subject, a set of digital skills, or a one-off initiative—have proven insufficient. Given its inherently cognitive, social, ethical, and behavioural scope [4][42], a framework that acknowledges this breadth while providing defined areas of action is therefore more realistic than one that promises unattainable simplicity.

Within this structure, the age-appropriate approach functions as a normative filter for pedagogical decision-making. Schools face continuous pressure to adopt new technologies, platforms, and practices-driven by industry, policy, parental expectations, and peer institutions. Without clear developmental criteria, responses risk becoming reactive and fragmented, leading to the uncritical integration of tools with uncertain pedagogical value [30][31]. The suggested principles of analogue before digital and active before passive engagement provide leadership with a coherent basis for determining when, how, and under what conditions digital media use is appropriate. This is not about restricting practice, but grounding it in a defensible rationale that can be communicated to teachers, parents, and students. The filter thus strengthens the school's capacity to say *yes*, *not yet*, or *yes, under specific conditions*, rather than defaulting to adoption or rejection.

The third implication concerns leadership. Without proactive pedagogical leadership, media practices tend to drift toward technology-led rather than pedagogy-led implementation [44]. This trajectory is not neutral but shaped by commercial interests, device availability, and convenience, none aligned with developmental priorities. Principled leadership is therefore a necessary condition of the framework. It requires setting limits, articulating purpose, and maintaining direction amid short-term pressures and competing demands [40], as well as balancing top-down coherence with distributed responsibility to prevent fragmentation [15]. With such leadership, competence goals

and developmental principles can be translated into the organisational reality envisioned by WSA. The tension between protection and empowerment, addressed next, illustrates this role in concrete terms.

3.3 Between Protection and Empowerment: Developmentally Timed Digitalisation

The framework proposed here addresses an increasingly polarised debate on digital technology in childhood education. On one side, research highlights risks of early and extensive screen exposure for mental health, attention, and self-regulation [21][22][25][26], calling for protective measures. On the other, policy emphasises digital skills as essential for participation in contemporary society [8][32]. Although both positions are evidence-based, they are often treated in isolation, framing protection and empowerment as opposing aims and leaving schools without a coherent basis for action.

The age-appropriate approach reframes this tension as one of developmental timing rather than ideology. Protection and empowerment are sequential: each is appropriate at different stages and mutually reinforcing. In early childhood, a protective stance is warranted not because technology is inherently harmful, but because the cognitive, emotional, and self-regulatory capacities required for its meaningful use are still maturing [18][19][20]. Early exposure does not accelerate media literacy and may impair the very capacities on which later competence depends [22][26]. As self-regulation and critical capacities mature, direct digital engagement becomes both appropriate and necessary, shifting the emphasis toward empowerment as an educational aim [37][35]. This perspective clarifies that “analogue before digital” is not technological scepticism, nor is prioritising health and wellbeing a rejection of digital participation. Rather, the framework challenges a prevalent default: the premature, unreflective, and commercially driven introduction of digital media into education, often detached from developmental readiness and pedagogical purpose. Rejecting this default does not mean rejecting technology, but ensuring that its integration is developmentally timed and pedagogically led, rather than driven by actors whose interests lie outside education.

A further implication concerns equity. Grounding early education in analogue, relational, and multisensory experiences establishes a shared foundation independent of family resources or digital access, mitigating inequalities associated with early exposure [36]. The subsequent introduction of structured digital engagement—supported by school-provided devices and clear pedagogical aims—extends this equity into the digital domain. Developmental timing and inclusion thus operate as complementary principles, enabling schools to address both without compromise.

3.4 Implications for Practice: Demands on Stakeholders and Conditions for Implementation

The framework above places substantial demands on the school organisation and its stakeholders. It requires strong institutional support, with K–12 leadership central to facilitating change while securing participation and thus the role of other stakeholders. Yet everyday workload often leads schools to perceive themselves as under-resourced

for the necessary restructuring. The pedagogical and organisational demands converge on leadership, teachers, and the wider community—especially parents—where limited capacity, opportunity, or motivation may constrain engagement [47]. Rather than arguments against the framework, these constraints define the conditions under which implementation must be led.

For leadership, WSA entails multiple challenges. Setting direction may be hindered by limited awareness of media literacy's significance, sometimes conflicting with industry-driven assumptions that more technology is inherently beneficial. Leadership styles—transformational, adaptive, agile, or distributed—strongly shape readiness for change and innovation capacity; their absence can weaken motivation and responsiveness to stakeholder initiatives [40]. Embedding the framework further requires aligning media literacy with the school's ethos, curriculum, teaching practices, and self-evaluation, effectively reconfiguring how existing leadership responsibilities relate to one another.

Teachers, as key drivers of change, may face strained capacity as engagement expectations extend beyond the classroom to addressing media use in families. Collaboration with parents is often complex, marked by tensions, misunderstandings, and concerns about being judged, autonomy loss, and parental expectations [48]. Addressing both formal and informal media use demands flexibility, ongoing professional development and reflexive practice, which are therefore integral to the framework rather than supplementary. Reliance on established pedagogical routines may prove insufficient in a rapidly evolving media landscape.

Engagement with the wider community remains inconsistent. Parental involvement is often limited and shaped by school-defined structures, with schooling viewed as a service rather than a partnership in co-educational efforts. Where shared culture and expectations are lacking, conflicting views on media use can emerge, affecting goals, competences and roles in education [49]. The framework's emphasis on family and school as co-educators responds directly to this gap and is thus essential for achieving behavioural outcomes.

Students, central to the approach, depend primarily on adults in early K–12 years and increasingly on peers later. The gap between cognitive and behavioural outcomes [3][5] underscores the need to ground early development in analogue, experience-based learning, while progressively building digital competence as self-regulation matures. This approach thus relieves students of responsibilities they cannot yet bear, locating these instead with adults and institutions that surround them.

3.5 Limitations and Directions for Further Research

The framework presented is conceptual and synthetic, and should be understood accordingly. It integrates existing bodies of work on competence goals, developmental sequencing, and whole-school implementation, but has not been empirically tested; the relative weight of its five implementation fields and the conditions under which specific leadership principles are most effective remain open questions. It should therefore be seen as a basis for structured inquiry and practice rather than a validated model.

Several gaps merit further investigation. First, the link between leadership practices and measurable student outcomes remains underexplored. While principled leadership is posited as necessary, the mechanisms and timescales through which leadership influences student-level effects require empirical study. Second, age-appropriateness and inclusion are often treated separately in the existing literature, yet the present framework suggests that they are complementary. A more systematic integration of developmental and equity perspectives—including how analogue foundations shape later digital participation across socioeconomic contexts—would strengthen both. Third, the role of families and the wider community requires closer examination, especially regarding *spillover* effects between school and home. Whether and under what conditions school-based media literacy influences home practices, and how home environments support or undermine school efforts, remains insufficiently studied. Fourth, the field suffers from persistent measurement fragmentation. The lack of standardised instruments limits programme comparison, longitudinal tracking, and detection of unintended effects—such as excessive scepticism toward digital media, reduced digital self-efficacy, or disengagement. Developing validated tools that capture both intended outcomes and side effects is essential for evidence-based refinement.

Further limitations relate to scope. The framework is designed for K–12 but would require adaptation rather than extrapolation for other stages. Similarly, while articulated broadly for cross-system relevance, its concrete operationalisation will depend on national curricula, regulation, and cultural expectations about school, family, and state roles. Cross-cultural studies are needed to distinguish context-independent elements from those requiring local adaptation.

Overall, these limitations do not reduce the framework's contribution but delineate its research agenda. By linking competence, development, and organisation, it makes visible a set of previously often isolated questions and provides a structured basis for further empirical work.

4 Conclusion

This study has argued that fostering media literacy in the digital age requires more than competence goals, developmentally informed pedagogy, or organisational commitment in isolation. Each advances the field but leaves gaps that contribute to the persistent disjunction between what schools teach and how students engage with media. The framework addresses this by integrating three perspectives: competence frameworks define *what* students should know and be able to do; developmental models clarify *when* particular forms of engagement become pedagogically sound; and the WSA *embeds* both within school practice. The integration of the three levels is the key contribution of this framework.

Two theoretical implications follow. First, media literacy is best understood as a long-term developmental process within an organisational ecology, rather than a discrete curricular topic or technical skill set. This reframing shapes how schools plan, sequence, evaluate, and lead media education. Second, the framework offers a principled resolution of the apparent tension between protective and empowering approaches

by framing them as a matter of developmental timing: early education emphasises analogue, relational, multisensory experience, while digital competence develops progressively with self-regulation and critical capacity. Protection and empowerment are thus sequential, not opposed.

For school leadership, the implication is clear: media literacy cannot rely on reactive measures or delegated responsibility. It requires proactive, principled, and pedagogically grounded leadership that sets direction, defines limits, and coordinates efforts across teachers, families, and the wider community. While the framework provides a structured basis for action, implementation remains demanding. Further research—through school-based piloting, validated measurement tools, and cross-context analysis—will be needed to refine its application. However, by making these questions researchable and offering schools a coherent basis of action in the meantime, the framework contributes to fostering self-regulated, responsible, and creative citizens capable of meaningful participation in the digital world.

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