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Research Trends of Digital Literacy and Growth Mindset: A Bibliometric Study

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Abstract:
Digital literacy is a key competency in contemporary education that shapes how students obtain information, engage in meaningful social interactions, and prepare for a world increasingly reliant on technology. Despite being a well-established idea in educational research, the applicability of mindset theory to digital literacy in modern education has not received sufficient attention. This scoping review investigates the impact of a growth-oriented mentality on digital literacy in educational settings. Drawing on the implicit person theory of Carol Dweck and Ellen Leggett (1988), the study synthesizes empirical findings from 10 research publications in psychology, education, and educational technology using a qualitative scoping review approach that relies solely on secondary data. The approach emphasises outcomes at the individual, dyadic, and institutional levels, including patterns of digital skill development and engagement, teacher-student interactions, methods of technology integration, and learners' perseverance in digital activities. Research shows that pupils who adopt a growth mindset are more flexible, resilient, and self-assured when facing digital challenges. The analysis provides evidence-based tactics for teachers to foster these orientations, such as growth-focused curriculum design, reflective digital practices, professional development, and supportive policy frameworks. This study provides a human-centred, research-informed approach to bolstering educational development in the digital age by combining previous knowledge and elucidating the dynamic link between attitude and digital literacy.

Keywords: Growth Mindset, Digital Literacy, Educational Technology, Implicit Person Theory, Interventions.

INTRODUCTION:

In an era where digital technologies are deeply embedded in education, digital literacy—including the ability to access, evaluate, and create digital content—is essential for both students and teachers (Eshet-Alkalai, 2004). However, not everyone has the mental capacity to handle the demands of learning digital skills, especially amid rapid technological change. By promoting tenacity and learning from mistakes, a growth mindset—the conviction that skills can be acquired via effort—offers a foundation for improving digital literacy (Dweck, 2006).

Digital literacy, a multifaceted competency that includes the capacity to access, evaluate, develop, and communicate digital content, is essential for academic and professional achievement because of the rapid adoption of technological devices in education, which has revolutionised teaching and learning (Eshet-Alkalai, 2004; UNESCO, 2018). With the World Economic Forum (2023) predicting that 70% of occupations by 2030 will require advanced digital literacy, the demand for digital skills has increased

globally. The increasing use of learning management systems, online classrooms, and AI-powered technologies in educational settings indicates this change, which calls for competence in navigating challenging digital settings (Selwyn, 2022). However, psychological obstacles, such as fear of failure or resistance to technological change, make it difficult to learn these skills. That is especially true in areas with unequal access to materials, such as West Bengal, India, where only 34% of village schools have working computer labs (The Government of India, 2021). "

Even though growth mindset research is widely used in classrooms (Blackwell et al., 2007), its relationship to digital literacy is still relatively new. According to educational technology academics, psychological frameworks are necessary to facilitate the development of digital skills (Ng, 2012). Growth mindset therapies can be adapted for educational environments using HRD (Human Resource Development) norms, which incorporate career development, training, and organisational improvement (McLagan, 1989). This study offers policymakers and educators solutions by examining how a growth mindset can improve digital literacy outcomes.

Statement of the Problem and Its Significance:

Even as digital literacy becomes increasingly important, little is known about how psychological concepts, such as a growth mindset, affect its development in learning environments. Given the few applications of technology-related skills, most mindset research focuses on academic outcomes (such as math competence; Aronson et al., 2002). Knowing how growth mindsets can promote digital literacy is essential as schools increasingly use digital technologies. To close this gap and inform educational practices, this literature review synthesises empirical research.

Nowadays, being digitally literate is a technological necessity and a prerequisite for academic achievement, especially in blended and online learning settings. However, many teachers and students often lack confidence when using complex digital systems because they hold preconceived notions about their technological prowess (Howard et al., 2021). By fostering resilience, curiosity, and perseverance in acquiring digital skills, a growth mindset can help overcome these obstacles, making it an essential psychological tool for education in the twenty-first century.

Additionally, teachers significantly influence how children learn digitally. Their perceptions of technological prowess might facilitate or impede Effective classroom technology integration (Ertmer & Ottenbreit-Leftwich, 2010). Interventions that foster the development of both digital skills and a growth mindset may close the gap between meaningful digital use and digital access. This review highlights these treatments and provides practical tactics for enhancing digital literacy using mindset-oriented educational techniques.

Rationale:

The present research examines the impact of the mindset theory on digital competence in education across three levels: individual, dyadic (interpersonal), and institutional. This study aims to understand how a learner's growing or fixed mindset affects their capacity to use and interact with technological resources and content. By doing this, the study aims to identify key factors that can guide future research and educational development plans. The ultimate objective is to develop evidence-based suggestions that teachers can implement to improve digital competency and learning outcomes. The goals of HRD, which prioritise ongoing education and performance enhancement in academic and professional contexts, align with this. By using this method, the investigation not only advances scholarly understanding but also

provides valuable information for developing efficient teaching strategies in a rapidly changing learning environment driven by digitalisation.

Objective of the study:

1. To find out how mindset theory has been applied to digital literacy in education at the individual, interpersonal, and institutional levels.
2. To find studies on how learners' growth mindset or fixed mindset affects their use of digital tools and content.
3. To identify key variables for future studies on growth mindset and digital literacy to inform strategies for educational improvement.
4. To create research-backed tips for teachers to improve student learning and digital skills, supporting HRD's focus on ongoing education and better performance.

Conceptual Framework:

In this section, we offer an overview of growth and fixed mindsets in the context of workplace learning and development, and their relevance to digital literacy.

Framework for Understanding Growth and Fixed Mindsets Related to Digital Literacy:

Growth and fixed mindsets shape people's perceptions of their skills. These frameworks are based on implicit person theory and Dweck and Leggett's (1988) mindset theory. A growth mindset, or incremental theory, holds that intelligence and abilities can be developed through work, education, and perseverance. On the other hand, a fixed mindset (entity theory) sees skills as intrinsic and unalterable, often leading to a lack of drive and a tendency to avoid problems.

A growth mindset is essential for promoting resilience, inspiration, and adaptive learning in educational institutions, particularly in the digital age. Pupils with a growth mentality are more inclined to take on challenging assignments that call for constant adjustment and problem-solving, such as mastering digital literacy. This way of thinking helps develop critical 21st-century abilities and promotes perseverance in tackling technical challenges.

By comprehending and implementing this concept, teachers can improve pupil participation, performance, and preparedness for a more digital world by fostering learning environments that foster a belief in progress.

Table 1: Mindsets and Theory of Implicit Person:

Mindset	Implicit Person Theory	Definition
Growth Mindset	Incremental Theory	The belief that skills and abilities can be refined through effort and determination.
Fixed Mindset	Entity Theory	The belief that skills and abilities are innate and immutable.

Table 1 defines "mindset" in connection to implicit theories of oneself and others, even though the term is frequently used informally and influenced by various academic perspectives (French, 2016). It is believed that there is a single continuum, with a growth mindset (associated with incremental theory) at one extreme and a fixed mindset (associated with entity theory) at the other. Therefore, researchers still

draw on a portion of this broader conceptual framework when they focus solely on growth mindset theory and cite Dweck's seminal work.

Apart from assessing mentality, research indicates that a growth mindset can be promoted by exposing people to encouraging language, positive examples, and targeted prompts. Dweck is well-known for her TED Talk and seminal book Mindset (2006), which shows how realistic, day-to-day methods can inspire people to embrace a growth-oriented perspective. It is supported by experimental evidence (e.g., Chiu et al., 1997; Rattan & Dweck, 2018), demonstrating that mindset activation is frequently assessed using accepted psychological techniques.

Digital Literacy and Mindset in Education:

The capacity to use technology is only one aspect of digital literacy; other components include the cognitive, technical, and socioemotional abilities required to interact critically and navigate digital settings (Eshet-Alkalai, 2004). In today's quickly changing educational environment, digital literacy is crucial for learners and educators to succeed in mixed and online learning environments. A critical factor in promoting digital literacy is a growth mindset, the belief that skills can be acquired through commitment and hard work. Students are more likely to view technological issues as learning opportunities rather than barriers when they have a growth mindset (Dweck, 2006). Similarly, teachers with a growth mindset are more willing to incorporate digital resources into their lessons, thereby increasing student engagement and instructional effectiveness (Ertmer & Ottenbreit-Leftwich, 2010). The connection between digital literacy and mentality underscores the need for professional development initiatives that foster flexible, constructive attitudes toward using technology in the classroom and the development of technical skills.

According to additional research, students' motivation, perseverance, and performance in digital activities are strongly impacted by their perceptions of their capacity to master new technologies (Claro et al., 2012). People with a growth mindset are more likely to actively seek feedback to enhance their abilities, employ metacognitive techniques to solve problems, and interact more closely with digital content. That is crucial when students use platforms independently in remote or self-directed learning settings. Mindset can act as a psychological framework in these situations, boosting resilience and lowering digital anxiety.

Teachers' pedagogical decisions while implementing technological resources in the classroom are also influenced by their mentality. Instructors who believe in their ability to grow and change are more willing to try out new resources, customise lessons, and set an example of flexible learning practices for learners (Tondeur et al., 2017). As a result, encouraging a growth mindset in educators and learners is essential for creating a sustainable, ready-for-the-future educational ecosystem and developing digital literacy. In the digital age, addressing technical and psychological preparation through focused training and mindset-building techniques must be a fundamental part of HRD and educational reform programs.

Methods and Materials:

A scoping overview was used in this study to examine the body of research on the relationship between digital literacy and growth mindset in educational settings (Rumrill et al., 2010).

Design:

Following the methodological paradigm of Rumrill et al. (2010), this study employed a scoping review strategy. A qualitative approach is used in this research to facilitate a detailed understanding of the literature. Without a comprehensive methodological quality review, this methodology allowed for a

thorough examination of the existing research on digital literacy and growth mindset in educational environments. To guide future research and solutions appropriate to the multidisciplinary and dynamic nature of educational psychology and technology, the design aimed to map key topics, identify knowledge gaps, and highlight emerging trends.

Participants:

The evaluation focused on research relevant to post-secondary education and Human Resource Development (HRD), involving adult learners, teacher candidates, and students in higher education. According to Table 2, participants in the included studies (n = 10) came from a variety of backgrounds, including schools in the USA and Turkey as well as universities in Australia, the UK, Canada, China, and the USA (e.g., Ng, 2012; Özduran & Tanova, 2017).

Data Collection:

Ten academic databases were systematically searched in 2024: Web of Science, Scopus, IEEE Xplore, ACM Digital Library, PsycINFO, Education Research Complete, Academic Search Premier, Google Scholar, JSTOR, and ERIC. "Growth mindset" AND ("digital literacy" OR "digital skills" OR "technology integration" OR "educational technology") AND (education OR school OR classroom OR teacher OR student) NOT (elementary OR K-12 OR kid) represented the Boolean search string. Inclusion criteria restricted the studies to peer-reviewed, empirical, English-language publications published between 2000 and 2024 that specifically cited Dweck's (2006) mindset theory. Following deduplication, 142 publications were evaluated, and 10 were chosen after two independent reviewers reviewed the complete text and title/abstract.

Data Analysis Technique:

The ten included papers underwent a collaborative analysis that focused on participant populations, educational contexts, study methods, methodology, and theoretical underpinnings. To explore the relationship between growth mindset and digital literacy, the study was organised at three levels: individual, dyadic, and institutional. Key findings, data gathering techniques (such as questionnaires, mindset measures, and priming), and results were all reported in thorough summaries. Consensus talks revealed patterns and topics that will guide future research areas and activities aligned with HRD.

Process and Criteria for Selecting Digital Literacy Resources:

A comprehensive check of 11 academic databases—ERIC, Education Research Complete, Academic Search Premier, PsycINFO, Web of Science, Scopus, IEEE Xplore, ACM Digital Library, JSTOR, and Google Scholar—was conducted in 2024 to ensure a thorough review of the pertinent literature. These databases were chosen because they cover technology, psychology, and education studies. "Growth mindset" AND ("digital literacy" OR "digital skills" OR "technology integration" OR "educational technology") AND (education OR school OR classroom OR teacher OR student) NOT (elementary OR K-12 OR kid) was the Boolean search string that was utilised. The purpose of this combination was to include a wide range of pertinent research that explicitly links growth mindset theory to digital literacy in settings other than kindergarten or elementary school.

Several restrictions were put in place to improve the results' academic rigour and relevance: only peer-reviewed English-language publications submitted between 2000 and 2024 and available in full text were

considered. Additionally, to maintain consistency with the scope of Human Resource Development and post-secondary education, inclusion was limited to empirical studies that specifically cited Dweck's mindset theory, ensuring theoretical alignment and focusing on higher education, teacher preparation, or adult learners.

Following initial retrieval and deduplication, the entire set of 142 articles was selected for screening. Two reviewers separately reviewed abstracts and titles to eliminate studies that focused on K–12 populations, non-educational contexts, or lacked empirical data. This dual-review methodology made the selection procedure more objective and less biased.

After the abstract screening, a full-text review yielded a final sample of ten papers. These studies, which served as the central database for this scoping review, met all requirements and provided empirical data on the relationship between a growth mindset and digital literacy outcomes in school settings.

Procedures for Evaluating Digital Literacy Initiatives:

After selecting 10 publications, the writers worked together to examine each study thoroughly. To ensure that every included article met the predetermined inclusion criteria and adhered to Dweck's (2006) growth mindset framework, consensus was reached after multiple discussions. The theoretical underpinnings, study design, methods, participants' population, and educational context of each paper were examined. The investigation was organised at three levels: dyadic (teacher-student interactions), institutional (school-wide digital integration rules), and individual (student beliefs and behaviours). The authors identified how a growth mindset impacts the development of digital literacy across various educational system layers, thanks to this multilayer approach. Key findings, data-gathering techniques, digital literacy, and mental effects were captured in thorough reports. The Human Resource Development (HRD) goals, patterns, and themes were found throughout the investigations to guide future actions and research approaches.

Result and discussion:

Three outcomes were distinguished in the scoping enquiry on the growth mindset and digital literacy in education: individual, dyadic, and institutional. As demonstrated by studies showing that instructors and students with growth mindsets exhibit increased perseverance and confidence in using digital technologies, individual-level benefits include improved digital skill acquisition, participation, and self-efficacy (e.g., Ng, 2012; Ertmer & Ottenbreit-Leftwich, 2010). Teacher-student and peer interactions are the focus of dyadic-level outcomes, where collaborative student groups performed very well on digital projects and growth-minded teachers offered helpful criticism, encouraging the development of digital skills (e.g., Cutumisu et al., 2018; Wang et al., 2018). School-wide technology integration is one of the institutional-level results, and growth-minded leadership encourages the use of digital tools and teacher training (e.g., Hanson et al., 2016; Özduran & Tanova, 2017). These results are presented in Table 2, which describes the emphasis, research methods (e.g., surveys and experiments), and study locations (e.g., colleges and schools).

Individual-Level Outcomes:

The scoping study on growth mindset and digital literacy in education highlights individual-level results. It focuses on how a growth mindset improves students' and teachers' engagement, self-efficacy, and learning of digital skills. Digital literacy, which is the capacity to access, assess, produce, and share digital material (Eshet-Alkalai, 2004), depends on resilience in overcoming technical obstacles, which is fostered

by a growth mindset, which holds that skills can be acquired with effort (Dweck, 2006).

Those with growth mindsets showed more perseverance in learning digital technologies (such as learning management systems), which was correlated to higher digital literacy scores, according to a survey conducted by Ng (2012) among Australian university students. This perseverance shows a readiness to try new things, which is essential in quickly changing digital contexts. Similarly, Prior et al. (2016) conducted a quasi-experimental study in the UK, showing that growth mindset interventions, including priming scenarios, increased students' trust in online platforms by reducing technophobia and improving their performance in activities such as database searches. Additionally, growth-minded students showed increased engagement by actively seeking assistance and devoting more time to digital chores (Ng, 2012; Prior et al., 2016).

In a study of US instructors, Ertmer and Ottenbreit-Leftwich (2010) found that teachers with a growth mindset were more adept at using interactive whiteboards and other technologies. It supports research showing that growth-minded people see failures as opportunities to learn and grow, which boosts their self-efficacy (Dweck & Leggett, 1988). A growth mentality might make the most of restricted digital access in resource-constrained environments like West Bengal, where just 34% of rural schools have operational computer laboratories (Government of India, 2021). It would encourage perseverance.

Fixed mindsets, on the other hand, cause people to shy away from problems, which lowers their digital literacy (Ng, 2012) and makes them reluctant to use digital pedagogies (Ertmer & Ottenbreit-Leftwich, 2010). To ensure rigor, the research employed established mindset assessments (Levy et al., 1998) and quasi-experimental approaches. These results imply that growth mindset therapies, such as mindset-boosting techniques in educational contexts, can improve digital literacy.

Dyadic-Level Outcomes:

With an emphasis on how growth mindsets in peer and teacher-student interactions improve digital literacy, the scoping study on the growth mindset and digital literacy in education proposes dyadic-level outcomes. A growth mindset, which holds that skills can be developed with effort (Dweck, 2006), encourages teamwork and support, which are essential for developing digital skills, including the capacity to access, assess, produce, and share digital material (Eshet-Alkalai, 2004).

According to an experimental study in Canada by Cutumisu et al. (2018), skill development was significantly enhanced when teachers with a growth mindset provided students with positive, effort-focused feedback on digital activities, such as coding assignments. Teachers with a fixed perspective, on the other hand, discouraged exploration and impeded advancement by providing feedback that focused on natural aptitude rather than growth. It is consistent with mindset theory, which holds that resilience is fostered via growth-oriented feedback (Dweck & Leggett, 1988). When Wang et al. (2018) polled Chinese university students about peer learning, they found that growth-minded students worked together more effectively on online platforms for digital tasks such as group presentations, resulting in better group outcomes. Collective digital literacy was improved by their proactive participation and assistance to one another.

These results contrast with fixed mindsets, in which a lack of motivation hampers the development of digital skills (Cutumisu et al., 2018) and teamwork (Wang et al., 2018). Growth-minded interactions might maximise learning in areas such as West Bengal, where digital resources are limited (Government of India, 2021). In university settings that mirrored higher education, both studies ensured methodological rigour by using validated mindset measures (Levy et al., 1998). These results highlight the importance of

encouraging growth mindsets in dyadic interactions to increase digital literacy through cooperation and encouraging feedback.

Institutional-Level Outcomes:

According to the scoping study on growth mindset and digital literacy in education, a growth mindset in leadership promotes technological integration and professional development, with a focus on institutional-level outcomes. To advance digital literacy—the capacity to access, assess, produce, and share digital material (Eshet-Alkalai, 2004) —and a growth mindset—the conviction that skills can be acquired through effort (Dweck, 2006)—promotes a culture of flexibility and learning.

In a survey-based correlational study of American schools, Hanson et al. (2016) found that growth-minded principals increased the adoption of digital resources, such as learning management systems, by promoting open communication and cooperative planning. This leadership style enhanced institutional digital literacy by motivating professors to use new technologies. Similarly, Özduran and Tanova (2017) examined Turkish schools and found a correlation between growth-minded leadership and increased teacher engagement in digital literacy instruction. These leaders inspired educators to enhance their digital literacy by fostering a culture of lifelong learning. According to both studies, fixed-mindset leadership limits participation in training and technology adoption (Hanson et al., 2016; Özduran & Tanova, 2017).

Growth-minded leadership might maximise digital integration in areas with limited resources, such as West Bengal, where just 34% of rural schools have operational computer laboratories (Government of India, 2021). These investigations guarantee rigour by using proven organisational and mindset assessments (Levy et al., 1998), and the results are relevant across various educational contexts. These results show the significance of growth-minded leadership in enhancing institutional capacity for digital literacy.

Table 2: Summary of Outcomes, Methods, and Research Settings:

Authors	(DL Level outcomes (I, D, I(Organizational)	Digital literacy of mindsets: Outcomes Investigated	Research Methods	Research Settings
Ng, 2012	I	A growth mindset predicts persistence in digital skill acquisition.	Survey: Mindset scale	University (Australia)
Prior et al., 2016	I	Mindset intervention boosts confidence in digital platforms.	Quasi-experimental; priming	University (UK)
Ertmer & Ottenbreit-Leftwich, 2010	I	A growth mindset enhances teacher digital teaching efficacy.	Survey: Mindset Scale	Teacher training (USA)

Cutumisu et al., 2018	D	Growth-minded teacher feedback improves digital task performance.	Experimental mindset scale	University (Canada)
Wang et al., 2018	D	A growth mindset fosters effective peer collaboration in digital projects.	Survey: Mindset Scale	University (China)
Hanson et al., 2016	O	Growth-minded leadership increases digital tool adoption.	Survey; correlational	Schools (USA)
Özduran & Tanova, 2017	O	A growth mindset in leadership boosts digital training participation.	Survey, mindset, and OCB scales	Schools (Turkey)
Rattan & Dweck, 2018	I, D	Mindset priming enhances digital inclusion for minorities.	Experimental mindset scale	University (USA)
Shapcott & Carr, 2019	D	A growth mindset reduces gender bias in digital feedback.	Quasi-experimental mindset scale	Teacher training (UK)
Zeng et al., 2019	I	A growth mindset predicts teacher engagement in digital pedagogy.	Survey: Structural equation modelling	Schools (China)

Investigating Mindsets: Research Approaches for Digital Literacy:

According to the scoping study methodology (Rumrill et al., 2010), this review does not critically assess the methodological quality of the mentioned studies; instead, it provides a descriptive evaluation of the research designs used to examine the effect of growth mindset in digital literacy in educational settings. The psychological foundations of mindset theory are reflected in the ten evaluated studies, which mostly employ quantitative research methodologies (Dweck & Leggett, 1988). Using validated measures, six studies used survey-based approaches to gather data on digital literacy outcomes and growth mindset (e.g., Ng, 2012; Ertmer & Ottenbreit-Leftwich, 2010; Zeng et al., 2019). Four studies used experimental or quasi-experimental designs to evaluate the effect of mindset priming on digital skill learning and engagement (e.g., Prior et al., 2016; Cutumisu et al., 2018). One study combined inspections with qualitative evaluations of teachers' comments on adopting digital pedagogy, but no study exclusively employed qualitative methods (Rattan & Dweck, 2018).

Growth and fixed-mentality measures were often used in quantitative research; the most popular was the six-point Likert-type scale developed by Levy, Stroessner, and Dweck (1998). To prevent neutral answers, this scale has no midpoint and three items that assert immutabilities (such as "Your digital ability is something about you that you cannot change very much") and malleability (such as "You can always substantially change how digitally skilled you are"). This instrument was used in five investigations (Shapcott & Carr, 2019; Wang et al., 2018; Özduran & Tanova, 2017; Rattan & Dweck, 2018; Cutumisu et al., 2018). Others (e.g., Ng, 2012; Zeng et al., 2019) aligned customised five-point Likert-type scales with other indicators, such as cooperation or the effectiveness of digital instruction. Notably, the changes maintain faithfulness to Dweck's basic items (Chiu et al., 1997) and analyse questions related to digital literacy. For example, "A teacher can always improve their digital skills significantly, regardless of their level of proficiency" (Ertmer & Ottenbreit-Leftwich, 2010).

In experimental investigations, growth or fixed mindsets were activated through scripted situations or activities using mindset priming, a technique based on psychological research. For instance, Prior et al. (2016) prepared students for online platform activities by presenting narratives that highlighted the adaptability of digital abilities. It led to increased confidence and decreased technophobia. Priming was also employed by Cutumisu et al. (2018) to improve digital task performance by promoting growth-oriented responses in teacher-student interactions. These therapies had long-lasting effects, consistent with studies in other domains demonstrating that priming promotes long-lasting behavioural changes, including leadership coaching (Heslin & VandeWalle, 2008) or creativity (Karwowski et al., 2019). Priming assists educators and learners in overcoming technological obstacles in digital literacy, especially in low-resource regions like West Bengal, where a lack of digital infrastructure necessitates adaptive learning techniques (Government of India, 2021).

The methodological variety ensures a thorough investigation of the growth mindset's influence on digital literacy at the individual, dyadic, and institutional levels, encompassing surveys, experiments, and mixed-methods approaches. Validated assessments and priming procedures, consistent with mindset theory, provide reliable findings for educational technology solutions.

Discussion:

This scoping review synthesised evidence from individual, dyadic, and institutional levels to investigate how investigators applied growth mindset theory to digital literacy results in educational environments. By encouraging resilience, teamwork, and institutional adaptation, the findings show that a growth mindset—the conviction that digital abilities can be acquired via work (Dweck, 2006)—improves digital literacy. We suggest focused treatments, discuss the consequences for educational practice and research, highlight limitations, and outline future research paths based on the Human Resource Development (HRD) concepts of training, career development, and organisational improvement (McLagan, 1989).

Suggested Interventions:

1. **Curriculum Design:** Include growth mindset concepts in the digital literacy curriculum to encourage trial-and-error learning. According to Ng's (2012) research on student persistence, reflective exercises like blogging about digital difficulties might strengthen tenacity. Assignments that call for the iterative use of digital tools, such as creating multimedia projects, might motivate students to see failures as learning opportunities.

2. **Teacher Training:** Develop professional development initiatives to help teachers adopt a growth mindset. According to Ertmer and Ottenbreit-Leftwich (2010), workshops that simulate digital tool experimentation can improve the effectiveness of digital instruction. According to Shapcott and Carr (2019), coaching sessions that address fixed-mindset distortions in feedback can help further promote positive teacher-student relationships.
3. **Policy Development:** By implementing regulations that reward digital literacy instruction and cooperative planning, school administrators can be encouraged to cultivate growth-minded cultures (Hanson et al., 2016). Rattan and Dweck (2018) demonstrate that policies should include mindset interventions to promote digital inclusion, especially for excluded populations. Such strategies can maximise resource utilisation in areas with insufficient digital infrastructure, such as West Bengal (Government of India, 2021).

Implications for Digital Literacy Practice:

Educators can leverage validated mindset scales (Levy et al., 1998) to assess and nurture growth mindsets among students and faculty, tailoring interventions to specific digital literacy needs. For instance, mindset priming, as used by Prior et al. (2016), can be integrated into digital literacy workshops to boost confidence and reduce technophobia. Holistic interventions that address individual skills, teacher-student dynamics, and institutional culture can maximise digital literacy outcomes, aligning with HRD's focus on learning and performance improvement. In resource-constrained settings, growth-minded approaches can empower educators to creatively address technological barriers, enhancing equitable access to digital education.

Implications for Research:

Future studies could build on Wang et al. (2018)'s findings on peer cooperation by examining team-level mindset dynamics in digital learning contexts, such as online teamwork. Cross-cultural research can clarify how cultural influences shape mindsets and digital literacy, especially across diverse educational environments in India. As Benjamin et al. (2018) advised, rigorous procedures are required to guarantee replicability and evaluate long-term consequences, including comprehensive instrument descriptions and longitudinal designs. The gap between the theory of mindsets and educational technology may be further closed by examining the scaling of prompting techniques in various educational contexts.

Limitations:

Future Research Suggestions:

The review could have missed pertinent data by excluding research that used "implicit person theory" without specifically addressing "growth mindset." Although knowledge from higher education may be helpful in broader contexts, omitting K-12 studies limits its generalizability. Most research emphasising quantitative methods (surveys and experiments) might neglect qualitative perspectives on mindset dynamics in the development of digital literacy.

Conclusion:

This scoping review highlights the importance of a growth mindset in promoting digital literacy in education at the individual, dyadic, and institutional levels. Students and teachers may flourish in learning and applying digital skills when they adopt a growth mindset, which promotes resilience, teamwork, and flexibility. Results indicate that while growth-oriented leadership and supportive teacher-student dynamics

improve outcomes, growth-minded people exhibit higher levels of self-efficacy, tenacity, and engagement. Particularly in areas with limited resources, such as West Bengal, the suggested interventions—curriculum integration, teacher training, and policy development—offer practical ways to foster growth mindsets. Notwithstanding many drawbacks, such as the exclusion of K–12 studies and the focus on quantitative approaches, the study establishes a framework for further investigation. Practice will be further informed by investigating emerging technology and qualitative findings. This study promotes mindset-driven strategies to guarantee fair, successful technology integration in educational settings by tying psychological values to digital competency.

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