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Enhancing Undergraduate Students' Critical Thinking through Digital Literacy in Morocco: A Narrative Analytical Assessment

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Abstract

This narrative overview examines the significance of implementing digital literacy in undergraduate education in Morocco and its role in fostering students' critical thinking to support informed decision-making in academic, professional, and personal contexts. 21st-century education extends beyond the transmission of knowledge, emphasizing the development of skills necessary to navigate a rapidly evolving, distraction-rich environment shaped by social media and Artificial Intelligence. Such an environment can impede students' cognitive abilities, particularly executive functions including critical thinking and decision-making, especially at the undergraduate education level. As a result, and based on the literature, fostering digital literacy in Moroccan undergraduate education has become a necessity. Rather than conducting a narrow systematic review, this paper provides a comprehensive review, synthesis, and reinterpretation of findings from the literature. The scope encompasses dispersed and different, yet related empirical studies, theoretical articles, research reviews, and intergovernmental reports over the past four decades. The paper highlighted first the significant influence of digital content on digital media consumers through the lenses of the most relevant and influential media theories. It further explores the urgency and feasibility of teaching and learning digital literacy in Morocco, and considers the broader role of educational institutions in this domain. It concludes by outlining evidence-based initiatives and best practices, research limitations, and future research directions. The paper ultimately advocates for the urgent integration of digital literacy into undergraduate education in Morocco.

Keywords: Media Influence on students, Digital Literacy, Critical Thinking, Undergraduate Education, Morocco.

تعزيز التفكير النقدي لدى طلبة التعليم الجامعي من خلال محو الأمية الرقمية في المغرب: تقييم تحليلي سردي

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الملخص: تستعرض هذه الدراسة السردية أهمية تطبيق محو الأمية الرقمية في التعليم الجامعي بالمغرب، ودورها في تنمية مهارات التفكير النقدي لدى الطلبة، بما يدعم قدرتهم على اتخاذ قرارات واعية ومدروسة في السياقات الأكاديمية والمهنية والشخصية. ولم يعد التعليم في القرن الحادي والعشرين مقتصرًا على نقل المعرفة، بل أصبح يركز على تنمية المهارات اللازمة للتعامل مع بيئة سريعة التغير وغنية بالمشتتات، تتشكل بصورة متزايدة بفعل وسائل التواصل الاجتماعي والذكاء الاصطناعي. ويمكن لمثل هذه البيئة أن تعيق القدرات المعرفية لدى الطلبة، ولا سيما الوظائف التنفيذية، بما فيها التفكير النقدي واتخاذ القرار، وخاصة في مرحلة التعليم الجامعي. وبناءً على ذلك، واستنادًا إلى ما توصلت إليه الأدبيات والدراسات السابقة، أصبح تعزيز محو الأمية الرقمية في التعليم الجامعي المغربي ضرورة ملحّة. وبدلًا من الاقتصار على مراجعة منهجية ضيقة النطاق، تقدم هذه الورقة مراجعة شاملة للأدبيات، إلى جانب توليف نتائجها وإعادة تفسيرها. ويشمل نطاق المراجعة دراسات تجريبية متفرقة ومتنوعة لكنها مترابطة، ومقالات نظرية، ومراجعات بحثية، وتقارير صادرة عن منظمات حكومية دولية، وذلك على مدى العقود الأربعة الماضية. وتسلط الورقة الضوء، أولًا، على التأثير الكبير للمحتوى الرقمي في مستهلكي الوسائط الرقمية، وذلك من خلال منظور أبرز نظريات الإعلام وأكثرها تأثيرًا. كما تبحث في مدى إلحاح وجدوى تعليم وتعلّم مهارات محو الأمية الرقمية في المغرب، وتتطرق إلى الدور الأوسع الذي تضطلع به المؤسسات التعليمية في هذا المجال. وتختتم بعرض مبادرات وأفضل ممارسات تستند إلى الأدلة، إلى جانب بيان حدود البحث وتحديد الاتجاهات المقترحة للبحوث المستقبلية. وتدعو الورقة، في نهاية المطاف، إلى الإسراع في دمج محو الأمية الرقمية ضمن منظومة التعليم الجامعي في المغرب، باعتباره حاجة ملحّة لمواجهة متطلبات البيئة التعليمية والمعلوماتية المعاصرة.

الكلمات المفتاحية :تأثير وسائل الإعلام في الطلبة، محو الأمية الرقمية، التفكير النقدي، التعليم الجامعي، المغرب.

Introduction

Review articles play a crucial role in research by offering various purposes and benefits for both scholars and policy makers. Review articles have several goals, including developing and evaluating theories, surveying the current state of knowledge on a particular subject, identifying problems, and providing a historical account of how theories and research in that area have evolved (Baumeister & Leary, 1997). Review articles are also helpful in scientific research and practical applications, including policy-making (Bero & Jadad, 1997). Additionally, writing a review helps authors gain a general understanding of the subject matter within their area of expertise. Furthermore, the writing process allows authors to develop a unique perspective on the issue. This enables them to synthesize and reinterpret results from various researchers into a consistent format as a cohesive body of evidence. All in all, reviewing literature enables scholars to understand how ideas have evolved and how different studies contribute to broader theoretical discussions (Ridley, 2012).

Narrative overviews are generally the preferred type of review when a researcher tries to review and link different studies on different topics either for reinterpretation or interconnection (Baumeister & Leary, 1997). The rationale behind conducting this narrative overview stems from the need to justify and clarify the urgency, importance, and possibility of teaching digital literacy in Moroccan undergraduate education by reviewing, synthesizing, and reinterpreting findings from dispersed and different, yet related studies and intergovernmental reports. In this narrative overview Paper, we will explore the importance of digital literacy in helping students develop their critical thinking skills, enabling them to make informed decisions in academic, professional, and personal contexts. We will also discuss the possibility of teaching and learning digital literacy in undergraduate

education in Morocco and education's role in addressing the issue under investigation. Lastly, we conclude with recent and tested best practices, limitations, as well as future research directions.

The scope of this paper is defined to ensure diversity while maintaining focus and clarity. It includes relevant studies of the last four decades and excludes irrelevant studies that fall outside of the time-frame and the boundaries of the discussion. For instance, findings from empirical studies, theoretical articles, research reviews, and intergovernmental reports over the past four decades were included to serve the aforementioned mentioned purpose. On a broad scale, the paper aims to offer a comprehensive synthesis of literature rather than a narrow, systematic review.

Methodology

Based on the literature, it is necessary to search at least two databases appropriate to the area of study to provide reasonable breadth and depth on the topic. Also, It is necessary to describe step by step how the search was performed. For instance, the researcher should mention sources of information, search terms and delimiting, and the selection criteria (Green et al., 2006).

Sources of information: Based on literature, the most efficient way to conduct a narrative review is to search in electronic databases (Green et al., 2006). Information used to write this paper was collected from the sources listed in **Table 1**. Searches through reliable databases and references of articles, books, and reports are conducted. The breadth of the search depended on the selected databases as well as the paper's topic and objectives, as outlined in the introduction.

Table 1

Databases Considered When Performing The Literature Search

Name of the Database	How to Access	Internet Site	Pay Site ?
Research Gate	Online Search	https://www.researchgate.net/	No
Sage Publications	Online Search	https://www.sagepub.com/	No
JSTOR	Online Search	https://www.jstor.org/	No
Science Direct	Online Search	https://www.sciencedirect.com/	No
Taylor & Francis Online	Online Search	https://www.tandfonline.com/	No
OECD	Online Search	https://www.oecd.org/	No
CAIS	Online Search	https://aisel.aisnet.org/	No
PubMed	Online Search	https://pmc.ncbi.nlm.nih.gov/	No
Plos One	Online Search	https://journals.plos.org/	No

Search terms & Delimiting: To make this research project feasible, setting specific parameters for the literature search is necessary. The boundaries in this step must be inclusive enough to capture as many relevant studies as possible and narrow enough to save researcher's time and effort (Green et al., 2006).

Regarding the search terms, the paper's primary themes were used as search terms. For instance, "Students' Media Literacy", "Students' Digital Literacy""Media Influence on Students", "Media's Main Theories", and " Media Influence".

Selection Criteria: By selection criteria, we mean what selection criteria were used to include or ex clude studies from this review (Green et al., 2006). Studies were included based on their time framen and their relevance to both the paper's themes and the methodology used, rather than on the writer's opinion or bias. Most references relate to students' digital literacy, while the rest of references focus on literature reviews. However, the exclusion criteria were based on the lack of pertinence to the topic, and methodology.

The writer adopted an interdisciplinary approach by including papers from different disciplinary dat

abases, provided that their focus is pertinent to the paper's topic and methodology.

Discussion

To explore the need for this narrative overview and the importance, urgency, and possibility of implementing digital literacy in Moroccan undergraduate curricula, we will examine media influence through four main relevant media theories ; for instance, agenda-setting theory, cultivation theory, social cognitive theory, and encoding-decoding theory. This discussion explores how key media theories explain the mechanisms of media influence and how these insights point to the growing necessity of digital literacy* in the 21st century, and to the possibility of incorporating it into undergraduate education in Morocco.

*Digital literacy is one of the terms that lack fully agreed upon definitions in the literature (Potter, 2022), so it will be useful to define it here.

Digital Literacy

Digital literacy definition is organized around three main areas of competency ; **use**, **understand**, and **create** (Johnson, 2015).

Use: is the technical skill needed to use computers and the internet. It covers basic skills for finding and using information online, such as search engines and databases, and cloud computing (Johnson, 2015).

Understand: This is the critical dimension of Digital Literacy. This concept refers to the set of skills needed to find, comprehend, contextualize, and critically evaluate digital media. Furthermore, the concept involves recognizing how networked technology influences behavior, perceptions, beliefs, and feelings about the world. Finally, the concept prepares digital media consumers to use information for communication, collaboration, and problem solving. As a result, digital media consumers are enabled to make informed decisions about their online actions and encounters (Johnson, 2015).

Create is the ability to produce content and communicate effectively through various digital tools. This involves adapting what digital media consumers produce for different contexts and audiences. It also means creating and communicating using images, video, and sound, as well as effectively and responsibly engaging with content such as blogs, discussion forums, video and photo sharing, social gaming, and other forms of social media (Johnson, 2015).

In this paper, the focus will be only on the critical dimension of Digital Literacy or what is called“**understand**” because of its pertinence to the topic of this study.

Media Influence through Theories

Among the established, foundational, and most influential media theories, we find Agenda-setting theory, cultivation theory, social cognitive theory, and encoding-decoding theory, each representing a different perspective on how media influences audiences and society. Because of the influential role the mass media play in society, it is necessary to understand the psychological mechanisms by which they shape consumers’ thoughts and actions.

1. The Power of Media Influence

1.1. Agenda-Setting Theory

Agenda-Setting Theory that is used to study the framing of news within a variety of media dispose of two levels with different focus of influence. The first-level agenda setting focuses on the media telling audiences what to think about through length and position of a selected story. Second-level agenda setting proposes that the way stories are framed influences audiences’ attitudes and how to think about the issues covered (Ghanem, 1997).

That is, the way a frame is prepared, how and what features of a story are selected, emphasized, elaborated, and excluded affects public opinion in general including students who consume digital media daily.

Figure 1
Agenda-setting Theory's Levels of Influence

Level One: ***What to think about***

Agenda-Setting Theory's Levels of Influence →

Level Two: ***How to think about it***

1.2. Social Cognitive Theory (Dual Paths of Influence)

According to Social Cognitive theory or SCT, there are two main paths of influence the direct pathway and socially mediated pathway, in addition to a third distinct learning incentives called self-produced motivation (Bandura, 1977, 2001)

1.2.1 Direct Pathway: In the direct pathway, media influences promote changes by informing, enabling, motivating, and guiding media consumers. Changes occur based on their own interactions with media and consequences that follow. For instance, when digital media consumers play digital games, they experience outcomes, such as scores, positive or negative feedback, misinformation, or wasted time. These outcomes motivate the digital media consumer to either change or keep certain practices (Bandura, 1977, 2001).

1.2.2 Socially Mediated Pathway: In the socially mediated pathway, media influences promote changes by linking participants, not necessarily digital media consumers, to social networks and communities. For instance, participants are motivated to make changes by the successes or failures of others who are similar to themselves (Bandura, 1977, 2001).

1.2.3 Self-produced Motivation: Self-produced motivation is the individuals' capacity to regulate their own behaviors based on their internal standards. It occurs when individuals rely on their own personal standards, engaging in observed activities they find personally worthwhile and refusing to participate in those activities of which they disapprove (Bandura, 1977, 2001).

The relationship between observation and motivation is a critical determinant in the modeling process (Bandura, 1977, 2001). According to social cognitive theory media consumers are more likely to either change or keep certain practices, when they receive negative or positive incentives or when they rely on their own personal standards to decide whether to engage or refuse to participate in these practices. In other words, motivation explains why digital media consumers often engage in seemingly irrational, sometimes risky, behaviors, such as challenges or other viral online trends. For instance, undergraduate students, who are frequently active on social media, are exposed to influencers and peers whose actions may appear rewarding; through attention or social recognition, such as getting 15 minutes of fame or getting peers' attention and respect. Thus, increasing the motivation to imitate. However, media consumers who rely on self-produced motivation are more likely to depend on their own personal standards to make their decisions whether to engage or refuse to engage in activities rather than being passively shaped by media messages. Teaching students digital literacy aligns with, supports, and strengthens self-produced motivation as both of them consider digital media consumers as active agents who are capable of interpreting, evaluating and responding to media messages based on their own beliefs, and goals,

which leads us to the second part of this section “Media Do Not Influence Everyone”.

2. Media Do Not Influence Everyone

2.1. Cultivation Theory

Although Cultivation theory was originally developed to study long-term effects of TV viewing on perceptions of reality, its core premise of repeated exposure shaping perceptions can be applied to other mediums such as mobile phones (Gerbner et all., 2009, as cited in Dainton & Zelley, 2019). Cultivation theory studies these effects through key components; repetitive exposure to mediated content, gradual shaping of worldviews and perceptions, and influence on attitudes and beliefs over time. Cultivation theory is not tied to TV technology, as it might be understood, TV is just a medium that was studied first, which explains why Cultivation theory can be extended conceptually to another medium such as mobile use. Noting that mobile phones are portable media platforms that students use to watch videos, scroll social media, consume news, or stream content. All the mentioned previously activities involve repeated exposure to mediated messages. In fact, content available on mobiles (YouTube, TikTok, Instagram, etc.) functions like TV in repetitively presenting themes, norms, and behaviors. Therefore, and based on the Cultivation theory, long-term exposure to these messages could similarly cultivate perceptions about society, relationships, or self-image.

2.2 Heavy Viewers / Heavy Consumers & Light Viewers / Light Consumers

Cultivation theory predicts that individuals’ social attitudes change as their TV viewing increases (See Figure 2) or as their digital media consumption increases. In other words, the more you consume media content, the more likely you are to view the world in a way consistent with reality depicted on that content. Gerbner et al. (1980) separated heavy viewers or heavy digital media consumers, from light viewers / light digital media consumers. Research indicates light digital media consumers select certain programs to watch, whereas heavy digital media consumers tend to graze ; watching whatever digital media content catches their attention (Gerbner, 1998, as cited in Dainton & Zelley, 2019).

Figure 2

Cultivation Theory’s Heavy and Light Viewers

2.3. Encoding/Decoding Theory

According to Encoding/Decoding theory, mass media messages are encoded based on ideologies, however, decoding these messages is not fixed or determined entirely by the sender (Hall, 1973, as cited in Dainton & Zelley, 2019). Hall assures us that every language, every symbol coincides with an ideology ; however, we might not immediately perceive the meaning system embedded into a television show, song, or movie, and we do not often recognize the power built into the messages. In other word, the interpretation, or decoding, of the message is not guaranteed (Becker, 1984, as cited in Dainton & Zelley, 2019). Audience members can challenge the ideologies embedded in the messages they receive. However, it is far easier to become an unthinking, passive recipient of media content than a critical thinker who analyzes and evaluates digital media messages and uses logical reasoning to make judgments or decisions (Hall, 1973, as cited in Dainton & Zelley, 2019).

Collectively tackling the above-mentioned theories demonstrates the depth and complexity of media influence, as each offers a distinct yet related perspective. The Agenda-Setting Theory underscores how the media direct audience focus and shape perspectives. Social Cognitive Theory explains how individuals imitate behaviors, participate in, or refuse to participate in activities they see in the media, linking cognitive processes to media influence. In contrast, the Cultivation Theory holds that media influences only heavy digital media consumers by emphasizing the cumulative impact of prolonged exposure on perceptions of reality. Finally, the Encoding-Decoding model underscores audience agency, connecting all previous theories by highlighting that message decoding is not guaranteed by the media's agenda, but is actively constructed rather than passively absorbed. This implies that, despite the huge impact of media influence on media consumers in general, digital media in particular, we can raise students' awareness of media influence and help them develop their critical thinking skills to actively construct meanings rather than passively absorb them.

Implications

Education is no longer about providing students with knowledge, it is becoming about developing soft skills, including digital literacy and decision-making. Digital literacy has become a necessity because students live in an era dominated by social media and Artificial Intelligence, whose algorithms, while facilitating connections and access to information, limit their access to opposing viewpoints and inhibit their critical thinking (Gerlich, 2025). Teaching students the skills required to navigate this age are becoming not merely an option but a necessity (PISA, 2021).

Part 1 : Education Can Make a Difference

Educate students for their future, rather than the past. . (PISA, 2021)

Andreas Schleicher
Director for Education and Skills.
Special Advisor on Education Policy to the Secretary-General

The good news is education can make a difference, the Program for International Student Assessment (PISA) report by the Organization for Economic Co-operation and Development (OECD), proves that education systems in which more students are taught digital literacy have a higher percentage of students who can correctly distinguish facts from opinions (See Figure 5) in the PISA reading assessment item "Rapa Nui" tasks (See Figure 4) . However, on average across OECD countries, only 54% of students reported that they were trained at school to recognize whether information is biased or not (PISA, 2018).

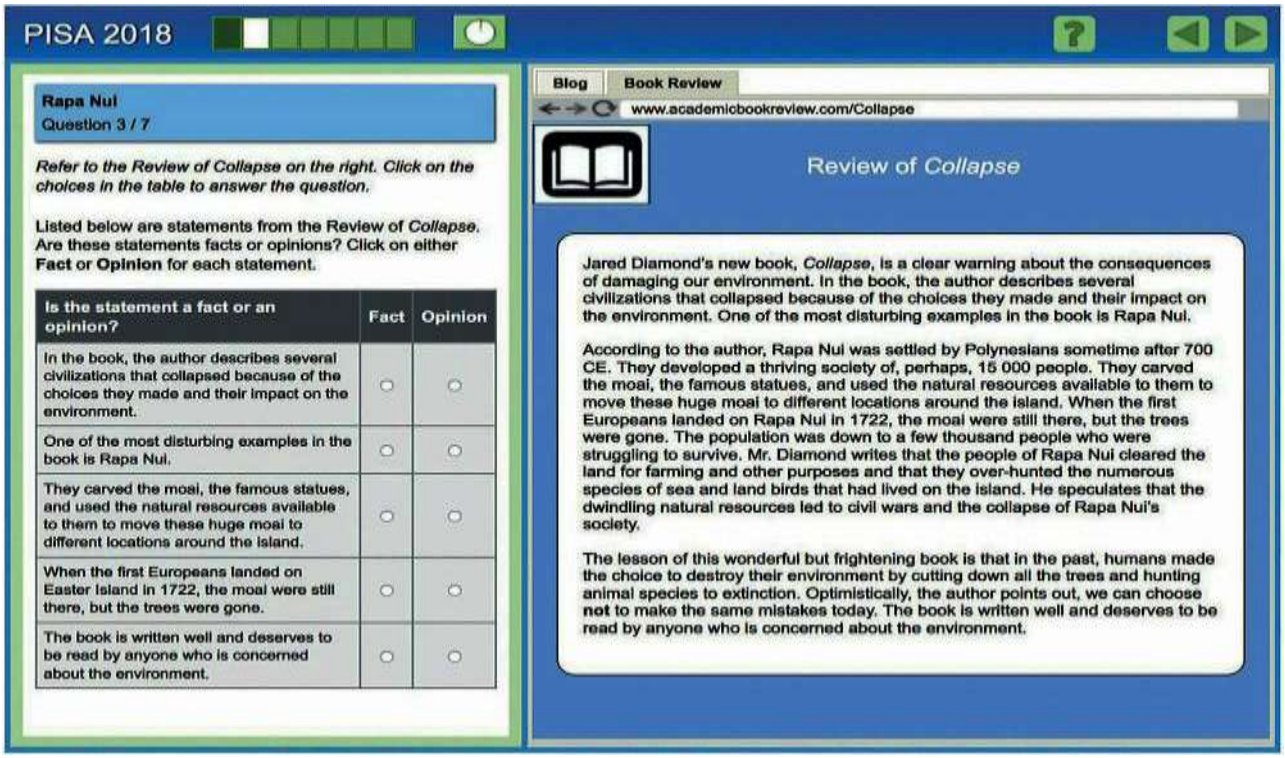
1.1. Rapa Nui Item #3: Facts Versus Opinion

The PISA 2018 reading assessment included one item-unit (Rapa Nui Question 3, CR551Q06), that tested whether students could distinguish between facts and opinions. For this item, the student must focus on the content and how it is presented rather than just the meaning. The estimated percentage correct in this item is 47% on average across OECD countries, higher than 60% in countries such as **the United States**, Canada, Australia, New Zealand, the Netherlands, and the United Kingdom. However, this percentage is lower than 20% in **Morocco**, and other countries such as Georgia, Indonesia, Kosovo, Panama, and the Philippines (PISA, 2018).

Figure 4

Rapa Nui released item #3: facts versus opinion

1. Bosnia and Herzegovina	5. Belarus	9. Greece	13. Macao (China)
2. Malaysia	6. Croatia	10. Italy	14. B-S-J-Z (China)
3. Colombia	7. France	11. Austria	15. Russia
4. Czech Republic	8. Lithuania	12. Iceland	



Source: OECD, PISA 2018
https://www.oecd.org/pisa/test/

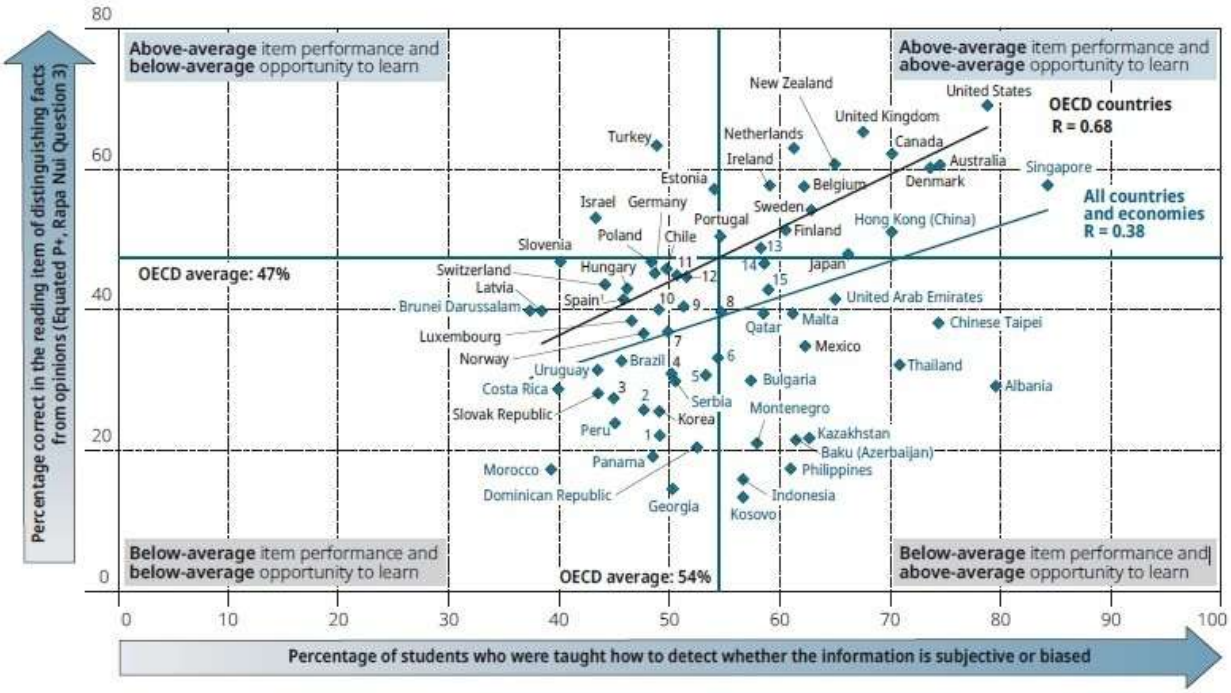
Figure 4 represents the PISA 2018 reading assessment included one item-unit (Rapa Nui Question 3, CR551Q06) in which students are presented with a text from a book review called Collapse. The question asks students to identify whether each statement from the book review is a fact or an opinion. Students must complete a table by selecting "Fact" or "Opinion" for each row. To receive full credit for this item, students were required to get all 5 rows correct*. For partial credit, students were required to get 4 out of the 5 rows correctly. If students got fewer than 4 rows correct, they would receive no credit (OECD, 2019).

*The correct answers are Fact, Opinion, Fact, Fact, Opinion (OECD, 2019).

1.2. Relationship between Reading Item of Distinguishing Facts From Opinions and Access to Training on How to Detect Biased Information in School

Figure 5

Reading item of distinguishing facts from opinions and access to training on how to detect biased information in school



Source: OECD, PISA 2018 Database, Table B.2.8.
https://doi.org/10.1787/888934239439

Figure 5 illustrates the relationship between the estimated percentage correct in the item that focuses on distinguishing facts from opinions and the percentage of students who were taught how to detect whether the information is subjective or biased. As pointed out in figure 5, the estimated percentage correct in this item is 47% on average across OECD countries, and higher than 60% in countries like **the United State** and Canada. However, this percentage is lower than 20% in countries like **Morocco** and Indonesia. On the other hand, among OECD countries, more than 70% of students in countries like **the United States** and Canada were taught how to detect whether the information is biased while less than 45% of students were taught this in Colombia and Switzerland, and less than 40% in **Morocco** and Latvia (See Figure 5). For instance, **the United States** where more than 70% of students were taught how to detect whether the information is biased, students there scored higher that 60% in the in the PISA reading item that focuses on distinguishing facts from opinions. Moreover, **Morocco** where less than 40% of students were taught how to detect whether the information is biased, students here scored lower than 20% in the same item. In contrast, students in Albania scored below the OECD average in this item 28% even though the percentage of students reporting that they were taught how to detect biased information was 79% well above the OECD average. In addition, students in Turkey scored higher than 60% in the same item even though the percentage of students reporting that they were taught how to detect biased

information was below the OECD average. These results may reflect differences in curriculum across countries as well as different practices and out-of-school experiences (PISA, 2018). All in all, it is the access students have to education on how to detect biased information in school that is driving a strong association with the estimated percentage correct in the item of distinguishing fact from opinion.

Figure 5 not only proves that access to education on how to detect whether information is subjective or biased is strongly associated with the estimated percentage correct in the PISA reading item accross OECD countries, but more precisely in **Morocco**. As mentioned above and illustrated in figure 5, less than 40% of students in **Morocco** were taught how to detect whether the information is biased; consequently, students scored lower than 20% in the PISA reading item. Though it is just an item and not a full-scale construct to assess students' capacity to distinguish between fact and opinion, yet, it proves that not getting access to education about how to distinguish facts from opinions negatively impacts students' PISA reading item scores accross OECD countries including **Morocco**. On the other hand, educating students how to distinguish facts from opinions helps them develop their critical thinking, enabling them to benefit more from online resources while reducing online risks (PISA, 2018).

The findings presented above highlight the importance of providing digital resources for educational purposes in fostering students' Digital Literacy in general and critical thinking in particular. They also emphasize the crucial role of providing opportunity to learn digital literacy in **Morocco** and its strong association with students' performance in the opinion/fact item (Mrah, 2022) & (PISA, 2018).

Part 2: Digital Literacy Implementation in Undergraduate Education in Morocco

2.1. Why Undergraduate Education?

The sudden increased autonomy can be challenging for untrained students, which highlights the need to integrate digital literacy into undergraduate education. Undergraduate Education is characterized by a sudden increase in students' autonomy. For instance, students must learn to manage their own learning and use the internet responsibly for their studies, in addition to other challenges and responsibilities. Consequently, integrating Digital literacy into teaching and learning through comprehensive undersgraduate curricula will help safeguard students as they navigate the internet (Laayadi, 2024) & (El Kandoussi, 2023).

2.2. Comprehensive Curricula & Educator Training

Comprehensive curricula and educator training are required to ensure that the broad range of skills that make up digital literacy are taught effectively. A curricular that supports both critical media literacy pedagogy and decision-making would protect students from potential psychological damage and would help improve their media literacy and decision-making skills. Standardizing curriculum will also make it possible to formally evaluate digital literacy programs and materials to ensure that they are used most effectively (El Kandoussi, 2023). Given the pervasive nature of media influence described by media theories, the findings of the PISA reports, and the challenges of undergraduate education, teaching digital literacy through standardized comprehensive curricula informed by best practices emerges as a necessary form of empowerment for 21st century students.

Part 3: Recommended Initiatives & Practices

Digital Literacy Through Governmental Initiatives

Government initiatives play a critical role in advancing digital literacy among students and the

wider public. The Indonesian government, for instance, has implemented comprehensive strategies to address challenges of the digital era by empowering communities and promoting digital literacy. One such initiative is ICTWatch, which seeks to improve digital literacy, encourage safe and constructive internet use, and support the adoption of artificial intelligence (AI) and other emerging technologies in Indonesia. It collaborates with a broad spectrum of stakeholders, including government agencies, civil society organizations, the private sector, academic institutions, media, and the technical community at national, regional, and global levels, due to its registeration with the Indonesian Ministry of Law and Human Rights in 2002. It also provides numerous free-of-charge ebooks and flagship programs through the 'Internetsehat' or 'Healthy Internet' platform to achieve the aforementioned objectives (Rahmah, 2015). Additional initiatives, such as StopHoax.id and TurnBackHoax, assist Indonesians in identifying and reporting online misinformation and hoaxes. The School of Influencers aims to promote the creation of positive online content, while Creators Hang Out offers a platform for content creators and experts to share knowledge with youth and the general public (admin, 2019). These Indonesian digital literacy initiatives present valuable models that could be adapted and integrated into Moroccan university curricula. Although Moroccan universities currently offer ICT courses and media studies, incorporating modules inspired by Indonesian programs could enrich curricula with practical examples of anti-hoax campaigns, online safety efforts, and community-based ICT literacy projects.

Enhancing Digital Literacy Through insights from PISA 2018 Digital Reading Assessment

The PISA 2018 Digital Reading Assessment offers educators a structured tool to evaluate students' digital literacy. The assessment enables educators to evaluate students' ability to assess online information, recognize bias, distinguish fact from opinion, differentiate credible from unreliable sources, and synthesize content from multiple media. It also enables students, for instance, to analyze websites or news articles and determine the trustworthiness of the information presented. However, the PISA 2018 Digital Reading Assessment has limitations, as it does not address all dimensions of digital media, including social media ethics, broader internet ethics (often referred to as netiquette), privacy awareness, content creation, and positive online behavior. Despite these constraints, the assessment remains valuable for identifying gaps in students' skills related to evaluating online information and can inform targeted improvements in digital literacy (PISA, 2018). To address these gaps, educators are encouraged to supplement the assessment with practical classroom activities, such as fact-checking exercises, critical evaluations of news sources and social media posts, discussions on bias and misinformation, and the integration of resources focused on ethical digital behavior.

Digital Literacy Through Representations of Body Image

Students' body image is a significant area that requires educators' guidance and support in the digital era. Students' body image concerns affect both girls and boys; however, girls remain the most influenced by digital media. The primary concerns regarding girls' body image in digital contexts are: (1) distorted body ideals due to digital photo manipulation; (2) the expectation to be constantly "camera-ready" on social media and the fear of being judged; and (3) eating disorders risks. Educators play a crucial role in raising students' awareness of body image by fostering critical representations of female bodies in both digital and traditional media, and promoting positive self-representation among girls. Educators, for instance, can provide students with resources on body image and encourage them to critically analyze media portrayals of bodies, including the influence of filters, editing tools, and influencer' beauty standards (Johnson, 2015). Furthermore, educators are advised to promote awareness of respectful and supportive ways of engaging with appearance judgments online through empathy and consideration (PISA, 2018). Rather than merely warning about potential harms, educators are advised to promote understanding and critical questioning of the factors that shape appearance judgments online.

Digital Literacy Through Critical Gender Identities

Gender norms are frequently communicated and reinforced by both traditional and digital media; therefore, digital literacy should be integrated into undergraduate curricula to mitigate potential online risks students may face. Huang's study demonstrates that students reconceptualize self and other through media engagement. As a result, educators are advised to create opportunities for dialogic reflection, such as guided discussions that enable students to articulate how media influences assumptions about gender identities. Educators are also encouraged to assist students in interpreting media within social and cultural contexts to foster understanding of how texts reflect and shape identities. Moreover, educators are urged to encourage students to challenge stereotypical representations and explore alternative narratives that more accurately represent gender identities (Huang, 2015). By adopting a production-oriented approach to digital literacy, educators can cultivate both critical consumption and creative expression among students.

Digital Literacy Through Students' Decision-making Processes

Effective decision-making requires educators to promote structured reasoning among students, enabling them to make decisions based on solid arguments rather than media influence. Scaffolded approaches, for instance, emphasize explanation and argumentation and enable students to make informed choices and offer greater benefits than theoretical instruction alone. For undergraduate students, who are often novice learners, rational choice frameworks serve as accessible entry points. Frameworks such as force field analysis, which assigns values to factors supporting or opposing a decision (see Figure 6), assist novices in objectifying the decision-making process (Jonassen, 2012). These rational choice frameworks help inexperienced undergraduate students systematically analyze options before making decisions, thereby reducing the influence of imitation and digital media on their choices.

Figure 6

Force Field Analysis of Decision

Forces

For ⇨

1. Higher Pay
2. Resume Boost
3. Career Growth Opportunities
4. More Recreation

Should I
Apply For the Job?

Forces Against

1. More Expensive Housing
2. Longer Work Hours
3. Longer Commute
4. Leave Old Friends

Figure 6 presents an example of Force Field Analysis of Decision applied to decision-making. Force Field Analysis of Decision, developed by social psychologist, Lewin (1943), examines the forces for and against a particular decision. In the example above, the decision "Applying for a Job" is placed at the center, with driving forces (pros) and restraining forces (cons) listed on either side of the decision, and each force is assigned a numerical value to indicate its relative strength (Jonassen, 2012).

Digital Literacy Through Students' Fandom Practices

Fandom provides an effective approach for teaching critical media literacy by enabling students to analyze how media texts position audiences and construct meaning. Research demonstrates that students' strong interests in popular culture, including music, movies, and sports, can motivate them to engage in critical media literacy practices rather than participating only at a surface level. Because many students already devote considerable time and emotional investment to these texts, they serve as authentic entry points for learning media literacy. Scholars further argue that incorporating fandom allows educators to expand the definition of texts to encompass multimedia and popular culture, aligning with the multiliteracies required of 21st-century students (Luke, 1997, as cited in Alverman, D.E. , & Hagood, M. C., 2000). To promote critical media literacy in the digital context, educators are advised to acknowledge students' experiences as fans and guide them toward a deeper understanding of fandom through multimedia and a variety of reading, writing, speaking, and listening activities.

Limitations to the Overview

The main limitations of this paper, and narrative overview reviews in general, are the risk of bias, lack of systematic methodology, overgeneralizations, and limited ability to establish cause and effect relationships between variables. Narrative reviews often rely on the author's selection of studies, which can introduce selection bias or confirmation bias. Authors may emphasize studies that support their perspective while neglecting contradictory evidence. Unlike systematic reviews, narrative reviews often do not follow strict inclusion and exclusion criteria. This makes the review less reproducible and reduces transparency. Narrative reviews may make broad statements or general conclusions based on limited or heterogeneous studies. This can lead to overgeneralized claims that may not be fully supported by evidence (Green, Johnson, & Adams, 2006). Finally, this paper, as other narrative overviews, primarily summarizes, synthesizes, and reinterprets existing findings rather than conducting formal analyses. Therefore, it cannot reliably establish causal relationships between variables.

Figure 7
Previous Studies Populations
Figure 7 presents an excerpt of the population I identified while reviewing media literacy studies published over the past four decades.

Future Research Directions

Based on the reviewed studies (See Figure7) and as mentioned in the literature, most digital literacy studies are either descriptive or prescriptive (Mrah, 2022), and most of them target high school students (Jeong, 2012). Given the identified gap, future studies should conduct more studies on evaluating media-literacy interventions at the university level. For instance, including digital-literacy interventions such as investigating, creating and evaluating the integration of digital literacy and critical thinking modules in university courses. Conducting longitudinal studies such as testing students' digital literacy development, testing students' ability to detect misinformation, and changes in attitudes and habits of students over several semesters. In addition, more of these empirical studies should be conducted at the undergraduate level, giving the existing research gap and the challenges that this level presents to students (Laayadi, 2024) & (Bahlamar, 2025). Therefore, more empirical studies are needed to help designing, integrating, and evaluating effective digital literacy courses within undergraduate-level syllabi to help forge digitally media-literate university students and citizens (Mrah, 2022).

Conclusion

This narrative overview review paper tried to justify and clarify the urgency, importance, and possibility of teaching digital literacy, particularly critical thinking, within Moroccan undergraduate education. The paper highlighted the importance and urgency of teaching digital literacy first by defining media influence through most relevant and influential media theories. Moreover, it emphasized the significant role of education in fostering students' digital literacy across OECD countries in general, and in Morocco in particular, as evidenced by the findings of PISA reports. Lastly, it concluded by suggesting recent and tested best practices, limitations, as well as future research directions. These initiatives aimed to address the identified issue and advocate for integrating digital literacy into undergraduate education in Morocco.

The paper examined the power of media influence on students as heavy digital media consumers

- A fresh- man general English course in a university in Taiwan.
- Indonesian Citizens
- Adolescent Black Girls
- Adolescents
- Young Canadians students
- 15 years 3 months and 16 years 2 months Students

through the lens of four of media theories and discussed their importance and relevance to the topic. First, **the agenda-setting theory**, which informs students what to think about and how to think about it. Second, **social cognitive theory**, which explains that students tend to either change or keep certain practices, when they receive negative or positive incentives or when they rely on their own personal standards. Third, **the cultivation theory,** which suggests that students as heavy digital media consumers tend to perceive the world in ways that correspond to realities presented in media content. This explains why some students tend to imitate their esteemed others, including influencers or characters shown in the media. The three previously mentioned theories,

influence students' decisions, perceptions, biases, and behaviors. Finally, Hall's **encoding/decoding theory**, which adds that media messages is not fixed or determined entirely by the sender, and that students can challenge the ideologies embedded in the messages they receive. It also mentions that media do not influence everyone, but only influences students who are heavy digital media consumers, which reinforces the role of digital literacy and critical thinking in improving students' immunity to media negative influence. The paper also presented findings highlighting the importance of providing digital education in fostering students'critical thinking. These results underscore the crucial role of offering opportunities to develop digital literacy in undergraduate education across OECD countries in general, and in Morocco in particular,and their strong association with students' critical thinking skills, as reflected in the PISA reading assessment item "*Facts Versus Opinion*". Finally, the paper suggested testing best practices and outlined limitations and directions for future research .

Based on the reviewed studies, most of the existing media-literacy studies conducted over the last four decades were descriptive or prescriptive (Mrah, 2022), and focused mainly on children and adolescents, especially secondary and high-school students, leaving a noticeable gap in evidence-based interventions targeting university populations. It was challenging to find empirical media-literacy studies conducted over the last four decades at the university level in general and at the Moroccan university level in particular. For instance, multiple randomized or quasi-experimental trials in the 2000s–2020s, focused on high-school interventions (Jeong, 2012). However, a growing tendency of studies are targeting university students, more research looks at undergraduates' digital/media competences, social media literacy, misinformation resistance, and university course interventions (Bahlamar, 2025).

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