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Improving Media Literacy Among Higher Education Students Through Vitagenic Information

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ABSTRACT: This research investigates the influence of vitagenic information on enhancing media literacy among students in higher education. The primary focus is on how students can leverage their personal experiences and vitagenic learning to critically assess and interact with a wide array of media content in the current digital landscape. Background. As digital media and information become increasingly prevalent, students in higher education regularly encounter a significant volume of content that necessitates advanced critical evaluation skills. Vitagenic information, which refers to life experiences and practical knowledge, is essential in developing students' media literacy. By incorporating vitagenic learning, students gain the ability to discern credible information from misinformation, thereby improving their media engagement. Research Methods. The study employs a mixed-methods methodology, integrating both qualitative and quantitative data. Surveys were conducted with 200 university students to evaluate their existing media literacy levels and to determine how vitagenic experiences affect their critical thinking abilities. Additionally, focus groups were organized to collect detailed insights into how students utilize their vitagenic knowledge when consuming media. Results. Initial findings reveal a noteworthy relationship between students' personal experiences and their capacity for media analysis. Students with a robust background in vitagenic learning tend to achieve higher media literacy scores, especially in identifying biased or misleading content. Conclusion. The study's results indicate that incorporating vitagenic information into the curricula of higher education institutions could significantly bolster students' media literacy competencies. This method allows students to draw on their practical knowledge and life experiences, leading to more informed and critical interactions with digital media.

Keywords: media literacy, HEU, vitagenic education, mass media, personal experience.

I. INTRODUCTION

Cropping any image and changing the meaning of the real situation can easily take place. Moreover, producing a fake image or video through some applications using modified face images can quickly alter what really happens. However, under real political or social contention, deep-belief individuals rely heavily on

"instantaneous" news to express dissatisfaction. Knowledge that has not been systematically examined may create confusion for other individuals, especially other students. In general, the abundant stream of information does not ensure "truthful content". Therefore, students' media literacy has become the focus of educational reform. There are a variety of teaching and research designs based on different purposes and educational content in this ongoing revolution of change. The purpose of this paper is to use the 5W1H questions to demonstrate the role of vitagenic information in media literacy, thus deepening the discussion on media literacy. Specifically, we expect to respond to the following questions [1, 2].

The article presents the idea of optimizing information using vitagenic information and its connection to media literacy. Classroom discussions have shown that vitagenic information is effective and has potential implications for addressing critical thinking issues in media literacy. Since the passing of the Higher Education Act of 1965, media literacy has become increasingly recognized as an important part of higher education curriculum to promote critical thinking skills, especially among students [3]. The concepts of media literacy and digital literacy are often perceived as overlapping, yet their primary objectives differ. Digital literacy focuses on the ability to use digital tools effectively, while media literacy emphasizes the critical analysis and understanding of information. This article explores this dichotomy, examining whether these skills should be taught separately or integrated for a more cohesive educational approach. Highlighting the interplay between media and digital literacy can provide a clearer perspective on their combined or individual impacts on educational outcomes.

The main goal of media literacy is to help people understand and evaluate the information they come across, and how it can impact their perceptions, decision-making, and behavior. In recent years, people's behaviors have been influenced by the widespread use of the Internet. Many individuals, particularly students, may tend to readily accept information that aligns with their existing beliefs, while questioning or resisting information that does not.

1. *PROBLEM STATEMENT*

In today's media-saturated digital age, the ability to critically analyze and evaluate media content has become indispensable. The rise of deepfake technologies, manipulated imagery, and other forms of media misinformation highlights the vulnerability of audiences, including higher education students, to deceptive practices. These challenges are compounded by the prevalence of confirmation bias, wherein individuals are inclined to accept information aligning with their beliefs while disregarding conflicting evidence. Despite ongoing educational reforms and the integration of media literacy into curricula, significant gaps remain in effectively addressing the critical thinking skills required to navigate such complex media environments.

Existing media literacy education programs often focus on general competencies, such as information retrieval and basic analysis. However, they fall short in equipping students with advanced skills to critically engage with emerging forms of manipulated media and disinformation. For instance, while students may recognize blatant forms of misinformation, subtle biases, and nuanced distortions in content often go unnoticed. Moreover, many programs lack a personalized or experiential learning approach that leverages students' own life experiences—referred to as vitagenic information—to deepen their engagement and critical awareness.

This paper seeks to address these deficiencies by exploring how the concept of vitagenic information can be employed to enhance media literacy among higher education students. Through a novel approach that integrates students' personal experiences into media literacy training, this study provides a framework for fostering critical thinking and independent decision-making skills. Specifically, it addresses the following key questions using the 5W1H methodology: What is the role of vitagenic information in media literacy? How can it be systematically integrated into education to improve outcomes?

By articulating the unique benefits of vitagenic information, this paper not only highlights a critical gap in current media literacy initiatives but also proposes actionable strategies for bridging this gap. It argues that leveraging vitagenic information can transform students into discerning media consumers and active contributors to a more informed and resilient society.

Vitagenic information in mass media refers to health information that "brings out the best in those who use the information." It is a term derived from "apolis," the Greek word for a good life, and the suffix "genic," which is generally used in medical terms to mean to give rise to. It specifically refers to selecting and interpreting mass

media messages within a consumer's personal communication system framework of disease prevention (primordial, primary, secondary, and tertiary prevention) and health promotion. Furthermore, as part of being media literate, consumers ought to be able to reflect upon the values of the various mass media messages they perceive, with consideration for what, and whose, interests are served or neglected in these messages [4].

Mass media is an important source of information in today's society and plays a large role in creating awareness and shaping the attitudes of individuals. In the context of higher education students, the reliance on mass media as a source of information may actually influence their health and well-being [5]. A direct link between greater exposure to mass media and the espousal of health-oriented values and behaviors has been highlighted among tertiary students. Higher education students also perceive their health status as more inferior when compared to the general public.

1.1 Theoretical Grounding of Vitagenic Information

The concept of Vitagenic Information is rooted in the interplay between experiential learning and critical analysis within the digital media ecosystem. While innovative, it aligns with established frameworks like the Constructivist Learning Theory and Experiential Learning Theory by Kolb, which emphasize learning through experience and reflection. Vitagenic Information expands these theories by integrating them into the context of media literacy, where personal experiences are not merely a backdrop but an active component of critical evaluation.

In comparison with Potter's Media Literacy Framework, which highlights critical thinking and media content comprehension, Vitagenic Information complements this by emphasizing personal experiential connections. Potter's framework provides tools for analyzing media content, while Vitagenic Information adds an emotional and contextual layer, making the analysis more relatable and impactful for learners.

1.2 Comparative Analysis with Existing Models

To situate Vitagenic Information within the landscape of media literacy models, consider its alignment with UNESCO's Media and Information Literacy (MIL) Framework, which underscores:

- Critical Evaluation of Media Content: Vitagenic Information supports this principle by equipping students with tools to discern credible information through experiential learning.
- Personalized Learning Approaches: While MIL primarily focuses on general media literacy education, Vitagenic Information addresses gaps by incorporating individualized, life-based experiences into media analysis.

Table 1. Comparison of media literacy models

Framework	Focus	Connection to Vitagenic Information
Potter's Media Literacy Framework	Critical analysis of media content	Vitagenic Information adds emotional and experiential dimensions.
Constructivist Learning Theory	Learning through reflection	Aligns with the reflective aspect of Vitagenic Information.
UNESCO's MIL Framework	Broad media and digital literacy	Complements MIL by personalizing media interactions through life context.

The article must clearly articulate how Vitagenic Information represents an evolution in media literacy education. Specifically, it should emphasize:

- Personal Relevance: Unlike traditional models, which often focus on external content, Vitagenic Information makes learning deeply personal, fostering stronger emotional and intellectual engagement.
- Multidimensional Approach: By addressing cognitive, emotional, and critical engagement indicators, Vitagenic Information offers a holistic method for improving media literacy.
- Practical Applications: Examples such as reflective journaling and role-playing demonstrate how the concept moves beyond theoretical constructs to actionable strategies.

The concept of Vitagenic Information builds on established theories such as Kolb's Experiential Learning Theory and Potter's Media Literacy Framework by integrating experiential and emotional components into critical media literacy education. Unlike traditional approaches that emphasize external analysis of media,

Vitagenic Information prioritizes the learner's personal experiences, fostering deeper connections with media content. When compared to UNESCO's MIL Framework, Vitagenic Information offers a personalized dimension that bridges the gap between broad competencies and individual engagement, particularly relevant in today's media-rich environment. This innovative approach not only complements existing models but also provides a nuanced perspective on media literacy education that prioritizes life-contextual relevance and critical self-reflection.

II. MATERIALS AND METHODS

1. OBJECTIVES OF THE STUDY

More than two-thirds of a thousand well-informed higher education leaders emphasized the core goal of media education going beyond the teacher's task, and focusing on fostering critical thinking. In this context, the educational "mission" with respect to mass media represents a topical issue addressing the needs of unprejudiced and substantial education designed for a modern society, capable of explaining, understanding, and interpreting the content of any mass media, avoiding any type of social or individual harm. Recently, due to the popularity and 24/7 access to information of news websites, educational work has increased in complexity, and educators have to be even more vigilant. Starting from this evidence, we proposed the VIQ, a novel multidisciplinary approach based on cross-sectional psychometric data. As such, we resorted to developing these items from our clinical experiences, in addition to the extant literature on the existing questionnaires of media literacy [1]. This study not only aims to improve media literacy through vitagenic information but also seeks to analyze the effectiveness of separating or combining digital literacy and media literacy. Consequently, the research introduces a new model that integrates methods for evaluating information quality while utilizing digital tools, enabling students to critically engage with and assess digital content.

1.1 Emphasizing the Novelty of Vitagenic Information

The main objectives of our study are: (1) to provide a perspective on understanding cognitive and emotional states of higher education students towards online information, as well as to explore their relation to media literacy of students, and (2) to address the Vitagenic Information concept through the development of a novel questionnaire - the Vitagenic Information Questionnaire (VIQ). With the proposed VIQ, our aim is to improve the know-how regarding fostering media literacy of higher education students, while developing a digitized society with historically new challenges in terms of information flow. To accomplish our objectives, a combined quantitative and qualitative study was conducted, involving students enrolled in higher education institutions, both from Romania and Spain. Our focus was to gain insights into the diverse ways in which students interact with online information and how their emotional and cognitive states are influenced by the digital media landscape [6]. By delving into these aspects, we aimed to contribute to the ongoing discourse on media literacy and its relevance in the modern world. The study also sought to shed light on the potential impact of Vitagenic Information, providing a deeper understanding of its implications for students and society at large. Through the implementation of the VIQ [5], we aimed to gather valuable data that could inform strategies for enhancing media literacy among higher education students [7]. Our findings are expected to offer nuanced perspectives on the evolving nature of information consumption and the role of media literacy in navigating this dynamic landscape. The insights gained from this study have the potential to inform initiatives and policies aimed at promoting greater media literacy and cognitive well-being among higher education students.

1.2 Understanding Media Literacy

Media literacy offers new skills grounded in the critical power and diversity of the new "media landscape," providing the common grounds for those who are trying to realize the function of media in service of democracy and global comprehension [8]. And crucially, media literacy enables consciousness to draw as autistic minorities and expose any deceitful practices, thus supporting genuine diversity. Properly used, media amplifies the voice and political power of even the smallest and weakest groups [9]. Unlike simple training for the young generation in media technique, media literacy is arguably the implicit response to the complex social theory of power distribution in a medium philosophy of media ethics and logic [2].

Media literacy is an analytic framework which addresses mental practices related to comparing, contrasting, and critiquing the conventions and critiques of all types of media [3]. Its aim is for the individual to develop the necessary cognitive skills that would allow them to use media as tools for learning and expanding their influence, rather than as gears in a giant media machine [10]. It is the ability to understand and evaluate media and maximize its potent information when dealing with reality, political issues, commercial marketing, the news, and the new media in the contemporary world.

1.3 The Definition and Significance of Media Literacy

Media literacy is associated with both the use and the comprehension of media. Understanding media literacy naturally involves methodological, historical, and pedagogical elements that can be fostered. Sparks argued, "At their simplest, the narratives utilized in constructions of media literacy urge students to consider the process by which mediated communication is produced before they delve into an analysis of the story's content or semantics. A more intricate understanding of how the narratives actually shape our political, social, and economic environments can further motivate student inquiry." Busy college students, faculty members, and education administrators may find media literacy difficult to comprehend. These people are exposed to advertising and news every day and engage with media technologies frequently; however, they are not adept at creating digital media for the purpose of learning or teaching. The result is that their media literacy may be higher in practical media use and lacking in theory and practice in creating and its significance. Understanding media literacy is still crucial in higher education. Educating these involved stakeholders about media literacy is the first step educators must undertake to facilitate their enriched understanding [2].

In the last few decades, digital media literacy has become increasingly significant in higher education. The subject of media literacy is deep and educating students about it in one semester, one year, or one lesson is definitely impossible to obtain authoritative results. Media literacy is not only the ability to comprehend, use, analyze, evaluate, and create media messages but also to participate and communicate in today's digital world. Media literacy has been defined by some researchers from the framework of qualities, abilities, or competences, such as "the ability to decode, analyze and evaluate the presentation of events in a variety of media", "the ability to examine the media contents critically", and "the ability to engage with media and to take part in media-related activities". A number of researchers [2, 8] also discussed the significance of media literacy related to media, such as understanding media, serving as a guide for media reports, etc.

1.4 Essential Components of Media Literacy

Cognitive and emotional components are deeply intertwined and make up three (for example, with a two-stage information processing model: exposure and interpretation or storage and retrieval) or four (playing on the separation between cognitive and emotional reactions) essential components of media literacy. The latter have added a fifth, positive self-esteem, reflecting the fact that media literacy helps in resisting media effects and promoting a healthier self-perception. Cognitive reactions require the public to be educated on how the media function, on the way they use words and images that are able to persuade and affect the public, on media ownership, on the way information and images are created, constructed, and decided upon, on advertising, and on the costs of media services. Emotional reactions focus on the interpretation of words and images, paying attention to feelings expressed by documents (anger, hate, joy, consolation, love, sadness should be handled differently by the citizen). Since interpretation, affects, and reactions are not without consequences and are influenced by environmental, social, and physical conditions of individuals, educational action and awareness of the media ecology within which individuals act are fundamental. Cognitive and emotional components are deeply intertwined and make up three (for example, with a two-stage information processing model: exposure and interpretation or storage and retrieval) or four (playing on the separation between cognitive and emotional reactions) essential components of media literacy [11]. The latter have added a fifth, positive self-esteem, reflecting the fact that media literacy helps in resisting media effects and promoting a healthier self-perception

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1.5 Integration of Photovoice into the RRQ Methodology

The photovoice method, a qualitative research technique that uses photographic documentation to elicit insights and perspectives, was integrated into the development and application of the RRQ in this study. Photovoice allowed participants to visually document their interactions with media and their interpretations of vitagenic information in real-world contexts. Below is a detailed explanation of how this method was incorporated into the RRQ process:

A. Photovoice Design and Implementation

- Preparation Phase: Before administering the RRQ, participants in the experimental group were introduced to the photovoice method through a workshop. This session provided guidelines on selecting and capturing images that represented their engagement with media and personal reflections on vitagenic learning.
- Data Collection: Over two weeks, participants captured photographs illustrating their experiences with media literacy concepts, particularly moments where they applied critical thinking to evaluate or interpret media content.
- Submission and Narrative Reflection: Each participant submitted a selection of their photographs, accompanied by short written narratives explaining the context, significance, and insights gained from these images.

B. Integration with the RRQ Dimensions

- Cognitive Dimension: Photographs and accompanying narratives were analyzed for evidence of participants' ability to identify biases, evaluate credibility, and apply critical thinking to media interactions.
- Emotional Dimension: The narratives provided insights into participants' emotional responses to media content, revealing their ability to interpret and regulate emotions elicited by potentially manipulative or sensationalized information.
- Critical Engagement Indicators: The photovoice submissions highlighted active participation in media analysis, showcasing how participants questioned sources and reflected on their learning experiences.

C. *Analysis of Photovoice Data*

- Photovoice data were qualitatively analyzed alongside quantitative RRQ responses to triangulate findings. Key themes, such as the influence of personal experiences on media literacy and the emotional impact of engaging with media, were identified through thematic coding.
- The photographs served as visual artifacts that enriched the interpretation of RRQ results, providing a deeper understanding of how vitagenic information shaped participants' media literacy development.

D. *Enhancing Participant Engagement*

- The photovoice activity fostered a sense of ownership and agency among participants, allowing them to connect theoretical concepts to tangible, real-life scenarios. This alignment between photovoice and the RRQ's objectives amplified the impact of the vitagenic module on their learning outcomes.

Thus, explicitly detailing the photovoice process and its integration with the RRQ dimensions, the methodology section provides a clearer understanding of how qualitative and quantitative methods complemented each other in this study. This enhancement highlights the innovative use of photovoice as a tool for deepening insights into the development of media literacy through vitagenic information.

2. *THE INFLUENCE OF VITAGENIC INFORMATION ON MEDIA LITERACY UNDERSTANDING*

The concept of vitagenic information is a relatively groundbreaking and innovative idea that has not yet been thoroughly explored by most people, particularly in relation to the development of media literacy among higher education students. This novel concept holds the exceptional potential to significantly impact the understanding of media literacy and redefine the fundamental elements required to achieve a deep familiarity with the media, as visualized by other scholars in the field of communication and media studies. In today's digital-era lifestyle, it is essential to cultivate highly intelligent graduates from higher education institutions who possess a comprehensive understanding of the media industry. These individuals should not only be cognizant of the constantly evolving media landscape, but also possess the ability to critically analyze and interpret news and information with a high level of reasoning and intellectual clarity. This comprehensive approach will enable students to become discerning consumers and producers of media content, contributing to the overall enhancement of media literacy at an academic level [15].

The concept of media literacy in the era of the Fourth Industrial Revolution is no longer limited to skills or mere knowledge of a medium, and more than just knowing how to use it critically. This is because individuals in society are constantly involved in various activities, either as viewers, receivers, or producers of media products, and have been influenced in various aspects of their lives, whether in the field of politics, culture, social economy, industry, or education. As such, enabling an individual to acquire a high level of media literacy familiarity is indeed vital to harness the power of information responsibly and safeguard the individual against the negative influence of unhealthy and non-beneficial media content. In fact, most communication and media studies scholars have indicated studies concurring on the significance of media literacy education [16, 12].

III. REVIEWS

1. *CHALLENGES IN MEDIA LITERACY AMONG HEU STUDENTS*

In addition, there is another less friendly aspect of gauging group media literacy, the "worded" vitagenic use of words, and the sometimes-intellectual euphemistic euphemism for what, in the field of science and in the world of children, has fundamentally been about keeping the layman's space good, solid, able to save weight and throw the delusions if necessary. Such tendering technologies could be seen as denying television as a platform and effect. They place a capital quotation that uses encoding and implement a DDR (Deadpan Dialogue Between interconnected cognitive accountants) to prevent issues such color and sound waves from doing their job and throw all the crowd ones torn from the crucial signals that individuals need to use for playing, knowledge, and emotional nourishment. The authorized exhibition of detailed research and well-done studies on the central auditory nucleus, on the visual primary and secondary primary visual areas, on the Wernicke area or on the processing of parasyndicated and logical-deductive sequences in the prefrontal

cortex starts to take the terminal of the neural encoded circuits seriously. This way, it will be possible to avoid disturbing more than necessary the intrinsic encoding of stimuli that is ready to include the language requirement, which is filled with spongy-to-the-sensory memory, characterized by an innovative feature of a neural network memory. That way, you would know how to take the word service back to a new and deep renaissance, far removed from its current ruthless drift of mind mill giving large bread-stacks [15, 2, 17, 13].

There are also significant challenges in accepting the understanding that universal access to independent information on lawful terms is necessary for democratic living. In our increasingly inquisitive society with the all-pervasive spread of worldwide media, the media, which is primarily driven by economic and promotional imperatives, acts as a major market force that tends to opportunistically undermine every code of conduct. The blending of merchandising and journalism can lead to the blurring of truth-seeking lines, and the influence of advertising can taint different essays. The advertising world plays a significant role in guiding which social and cultural concerns are addressed, shaping the daily intake of major news content, public commentaries, information, and experiences from the media. As a result, public policy science and eventual academic recognition often struggle to address the ongoing challenges in knowledge that impact our faith in policymaking as we move forward. These challenges highlight the insecurity and relevance of political, cultural, and epistemological concerns in comparison to scientific and social-political tensions in the development of a democratic and cohesive European Union [18, 16].

Isolation among unwitting information providers is a prevalent challenge in creating media literate individuals among the younger generation. This stems from the scarcity of opportunities to develop a scientifically functioning understanding of public information processes and operations in today's world. Public school systems worldwide seem unable to provide young men and women with actual information in the context of philosophy and reality. Furthermore, most often, experienced adults do not demonstrate to younger generations how to deal with data in a rational and reliable manner. People may use simple ways to cope with information overload around the world as we move into new phases of wealth that pretend to demand high levels of cognitive and original processing. This may compromise belief in national and regional political institutions for oversight and control of modern media. Innovation in the profit-earning media can continue to outstrip the growth of the capacity of human cognition to make rational choices on today's deluge of new expertise and defective and overwhelming knowledge [16, 19, 20, 21, 22, 23].

2. CURRENT TRENDS AND ISSUES

Undergraduate students who are soon-to-be teachers may be majoring in Education, but many of them lack print and media literacy skills in the areas of general cultural knowledge. This is particularly relevant due to the ever-changing landscape of media formats, sources, and platforms that students are exposed to in today's society. The term vicarious learning, also termed vicarious capacity building, is one way to describe learning that occurs in classrooms focused on both traditional and alternative print or media topics [24]. The Vicarious Capacity Building Model is hypothesized here by means of two research questions posited to determine the nature of the association and causation between alternative print and media knowledge, and teaching candidate familiarity with previously unseen alternative content [25]. The research questions aim to elucidate the potential impact of exposure to diverse media forms on teacher preparation and the ability to engage with students in a media-rich and culturally diverse society [26]. The study further seeks to explore pedagogical strategies that may enhance the print and media literacy skills of future educators, thus ensuring that they are adept at navigating and interpreting a wide range of media content to effectively teach and connect with their students [27]. This examination of vicarious learning and capacity building in the context of modern media aims to inform educators, education policymakers, and curriculum developers about best practices for preparing teachers to meet the challenges of media-rich classrooms and enable them to promote critical thinking and cultural understanding among their students [28].

This section discusses current trends and issues in the area of media education and examines media education as an instructional directive separate from other forms of information literacy, due to unique literacy needs and the specificity of media literacy outcomes in the Vocational College context. It also depicts young people as avid consumers of media, particularly in new digital media forms. In order to stay competitive in their market, media producers have come increasingly to focus on young viewers as a valuable audience demographic.

2.1 Factors Contributing to Poor Media Mentality

An area of growing daily incompletion observed by the authors is the poor mentality of many people who work in the informational media and have the ability to influence the beliefs of the public for their personal benefit, thereby dooming the mental horizon of especially children, employees, and ignorant clients [29]. Along with television and radio, the other important means that transmit vital information is the Internet. According to the National Association for Media Education in the USA, before 1987 media literacy was associated only with conscious usage and the critical analysis of print and electronic media, and starting from this date, teachers from all over the world have added the content "digital" to the terms related to the concept. The main international organization in this field, known by the acronym IMLA [30], founded in the USA, has the following as its mission: "to be a source of support and initiative that will allow the access of the varied nations to media education programs, to cause an increase of media education courses in the whole world and share information with them, to document and share research in this field." In the words of Bruno Diesi, "media literacy is even today a very important element that should help new generations to find the appropriate dimension of the world in which they live...to intervene in the decisions of political man about the use they make of media resources." This extremely important objective meets a myriad of insurmountable mental shortcomings or, at best, difficulties. The lack of media literacy can lead to severe consequences, such as misinformation, limited understanding of complex issues, and susceptibility to manipulation by powerful entities [31]. Therefore, it is crucial for individuals to receive comprehensive media education that encompasses all forms of information dissemination, including digital media. By promoting media literacy, society can cultivate critical thinking skills, skepticism, and discernment in individuals of all ages, ultimately contributing to a more informed and intellectually empowered populace. As the digital landscape continues to evolve and expand, the importance of media education becomes increasingly evident, making it essential for educational institutions and governments around the world to prioritize media literacy initiatives and programs. Through concerted efforts to enhance media literacy, we can mitigate the negative impact of media manipulation and ensure that future generations are equipped to navigate the complex media environment and make well-informed decisions [32].

3. STRATEGIES FOR ENHANCING MEDIA LITERACY THROUGH VITAGENIC INFORMATION

The training of a population capable of understanding the agents and dynamics governing the informational ecosystem is not only a task of governments but of society as a whole, starting with the academic institutions. University students are not immune to the phenomenon of fake news, but they are the ones on an educational path that should develop skills such as critical thinking and an ethical and active use of information. Fostering media literacy competences in higher education can't just be a matter of 'specialized' faculties, such as Communications or Social Education: all degree programs should consider the dimension of the ethical use of information. Raising the media literacy of the new generations requires considering aspects on both the side of the users, to improve individual skills of critical thinking and avoiding posting or sharing fake news, on the one hand, and on the supply side, where the task of communicating reliable and correct information is also important [33, 34, 35, 36, 37, 38].

According to a 2018 Eurobarometer survey, more than eight in ten (83%) of European Union surveyed believe fake news should be combated, especially through better education and more critical thinking. In

2021, according to a study by the European Parliament, 89% of citizens consider disinformation to be a problem for democratic societies, and 71% think it is a problem for the functioning of public authorities and services in general. To reduce the impact of fake news, people suggest the most widely shared areas for action are: liberating platforms of fake news (78%) and educating children on recognizing fake news (73%). These figures are interesting because resorting to technical solutions, such as improving the algorithms that identify and exclude misleading content from platforms, may not be enough. One of the causes of the proliferation of fake news, especially among young people, is the lack of critical thinking and media literacy [39].]

3.1 Integration into Curriculum

The concept of embedding media and information literacy into the curriculum for all programs at universities has been discussed for many years. Studies have highlighted the importance of media and information literacy to underpin student knowledge by, for example, training them in information searching, and developing their interpersonal skills in accessing, evaluating, and applying information. Furthermore, critical thinking enables the critical analysis of complex information. Other studies have focused on practical implementation. These studies have developed media literacy teaching materials for different disciplines to enhance the role of library and information science departments in understanding information in university-issued papers, focusing on the interaction between engineering and information technology, and exploring information literacy in sports science. Over the past few years, there has been an increasing interest in integrating media and information literacy across various academic disciplines, with a particular emphasis on digital literacy and how it intersects with traditional literacy skills. In light of this, many universities have been exploring ways to incorporate these concepts into their existing curriculum, recognizing the need for students to develop a critical understanding of the media landscape and the skills to effectively navigate and evaluate information in a digital age. This has resulted in a growing body of research and resources aimed at providing educators with the tools and knowledge to effectively integrate media and information literacy into their teaching. This includes the development of interdisciplinary courses that integrate media and information literacy into the core curriculum, as well as initiatives to raise awareness and promote the importance of these skills among faculty and students. As the importance of media and information literacy continues to gain recognition in the academic community, it is expected that further efforts will be made to expand and strengthen its integration into university programs, ensuring that students are equipped with the essential skills to thrive and succeed in an increasingly complex and interconnected world [40, 41, 42, 43].

This framework, which was endorsed by 118 UNESCO member states in 2018, distinguishes between four interrelated principles: (a) freedom, pluralism and independence, (b) ethics and diversity, (c) quality and transparency, and (d) prevention and safety [44]. Vitagenic information sees information as something which not only informs, but also something which influences, and therefore can make us healthy or unhealthy [45]. Assigning this expanded view of information to the media literacy concept gives a new direction to media literacy education activities, especially in higher education settings [46]. Higher education institutions have widely acknowledged the growing need for students to develop media literacy competences through the disciplines of their study [47]. Media literacy education is therefore seen as a component of the broader approach to embed media literacy within the curricula of all departments of higher education institutions, and integrating media and information literacy into lifelong learning practices in higher education institutions [48,49].

3.2 Workshops and Training Programs

Similarly, Cooke et al. created workshops that aim to improve critical thinking and awareness surrounding fake news. The group surveyed 1,015 attendees immediately before and after taking part in either the 'Science of Fake News' or the 'Science of Unicorns' workshops, on their interest in science and their

critical thinking skills [51]. Cooke et al. found a positive outcome: participants' interest improved, which was sustained over time, and followed-up testing also revealed improvements in interest and balance in media sources [52]. Findings from an exploratory study examining media trending content preferences among college students by Bailey, Kim, and Solis [53, 53] resulted in placing greater emphasis on social media and information literacy with targeted workshops to improve credibility assessment and addressing digital propaganda.

Learning to access, interpret, and critically analyze both vetted and debunk unvetted information is essential for students to develop strong media literacy skills. A growing trend in educational settings is the implementation of workshop programs aimed at enhancing young adults' ability to assess unvetted information critically. As an illustration, the Evidence Toolkit Online (EvTO) is an evidence-based online outreach module specifically designed to enhance climate change literacy within a journalistic framework. Its effectiveness is evaluated by measuring changes in comprehension and integrative complexity using a journalism outlet that incorporates the toolkit. This exemplifies the increasing recognition of the importance of media literacy skills in today's educational landscape [50].

As society becomes increasingly digitalized and reliant on technology for information, honing these skills becomes crucial. Educational institutions have a profound responsibility to equip their students with the resources and knowledge necessary to navigate the ever-evolving media landscape. By embracing workshop programs and specialized online modules, schools are working to cultivate a generation of individuals who can discern between credible and misleading information [53]. This not only prepares them for academic success but also for active participation in democratic societies. The ability to identify and critically evaluate information is a cornerstone of an informed citizenry and is vital for maintaining an engaged and discerning population.

In addition to traditional academic subjects, media literacy should be integrated into the curriculum to ensure that students learn these skills from an early age. This encompasses not only recognizing bias and propaganda but also fostering a healthy level of skepticism when encountering new information [52]. By providing students with the tools to navigate the complex web of online content, educators are helping to shape individuals who are equipped to think critically in the face of misinformation and disinformation. In doing so, educational institutions are contributing to the overall societal effort to combat the spread of false or misleading information, ultimately promoting a more informed and interconnected global community.

4. CASE STUDIES AND BEST PRACTICES

As students at institutions of higher education, it is crucial to have an understanding of future academic and career prospects, and to be able to evaluate the available information effectively. This work aims to enhance media literacy by integrating pedagogical practices that stress the significance of media literacy while also maintaining personal wellness and staying informed about current events and news. The chapter delves into the importance of both current and desired future skills, emphasizing the need for a comprehensive understanding of the skills and behaviors that should be prioritized in educational curriculum and events. It also explores how these skills can be integrated into pedagogical methodologies within the framework of wellness, thus ensuring a well-rounded approach to education. As academic institutions continue to evolve, the role of media literacy becomes increasingly significant. Therefore, it is essential to equip students with the necessary tools to navigate the complex media landscape effectively [54]. Through a combination of critical thinking, communication, and information analysis, students can develop the skills needed to evaluate and interpret media messages, thus enhancing their overall media literacy [55]. Furthermore, this approach emphasizes the importance of personal wellness, ensuring that while students are engaging with media, they are doing so in a healthy and balanced manner [56]. The chapter presents practical strategies for integrating media literacy into educational practices while promoting well-being and

awareness of current events. It serves as a guide for educators to create a balanced and holistic approach to education that addresses the multifaceted needs of students in today's fast-paced media environment [57].

This part supports stakeholders in mastery and understanding the consequences of bias amidst information. It proposes that part of media literacy definitions be equated to the protection of sustainable health. Stressing the application of vitagenic pivots promotes individual, academic, and occupational wellness during use. Proper media literacy supports social prevention relating to information disorder and other social ills. Guidelines for economic, health, cultural, and media social reproduction through asset-enhancement sustenance are proposed for arrangements. The proposed vitagenic perspective focuses on a pedagogical approach effectuated intermediary skills [57].

4.1 Successful Implementations

Nanyang Technological University's highly reputable Wee Kim Wee School of Communication and Information in Singapore has run media and information literacy workshops for Singaporean educators from both primary and secondary schools. The pedagogical benefits of the workshops are assessed as part of the research project. The Education Programme Organizer (EduPO) at the National Institute of Education, Nanyang Technological University, has worked with schools to run inquiry-based learning that encourages the development of critical and creative thinking, as well as knowledge and understanding. Depending on the school's choice, the learning activities can take forms such as web quest, role-play, or scenario-learning. Media and ICT literacy skills will also be transferred and taught through the inquiry-based learning. Overall, the Media and Information Literacy is divided into three components – Medialogy, Visualogical, and Technologcalogical. The comprehensive nature of the program ensures that educators are equipped with the necessary tools to effectively teach and nurture students in the digital age. This initiative not only benefits the educators but also has a positive impact on the students' ability to navigate and critically analyze the vast amount of information available to them. By fostering information literacy, Nanyang Technological University is playing a crucial role in shaping the future generations of digitally literate individuals [58].

The challenges outlined above are not insurmountable, and many success stories can be attributed to educational institutions, educators, and students all around the country. This section highlights some successful implementations of media and information literacies by institutions both locally and overseas. It seeks to illustrate not only the interdisciplinary nature of these literacies but also how they extend beyond the formal curriculum to impact students and the wider community. The NIE provides the media and information literacy "19h of Education and will also serve to ensure that all preservice teachers receive a common grounding in the 7Cs so they can then pass on these skills to their students in local schools [59].

4.2 Examples of Media Literacy Initiatives

A. Google's MediaWise Project (2023 Update):

- Overview. In collaboration with Poynter Institute, Google continues to run the MediaWise project, aimed at combating misinformation and educating young people about online news verification. In 2023, MediaWise expanded to include more interactive video tutorials, leveraging platforms like TikTok and YouTube Shorts to target Gen Z audiences.
- Features. MediaWise includes fact-checking tools, tutorials on spotting deepfakes, and partnerships with educators to integrate media literacy modules into classroom settings.

B. Meta's Digital Literacy Library (2022 Expansion):

- Overview. Formerly Facebook, Meta's Digital Literacy Library provides resources and lesson plans in over 40 languages, specifically designed for educators to teach safe and informed use of digital platforms.
- 2022-2023 Enhancements. New modules focus on deepfake detection, privacy settings, and understanding algorithms behind content recommendations.

C. *UNESCO's MIL Clicks Initiative (2021-2024):*

- Overview. MIL Clicks (Media and Information Literacy Clicks) promotes awareness and critical thinking skills globally by engaging users on social media platforms. It uses gamified quizzes, campaigns, and community-based interactions.
- Recent Progress. Since 2022, MIL Clicks has partnered with Twitter's Birdwatch feature, integrating media literacy prompts to help users analyze misinformation directly on the platform.

D. *TikTok's Media Literacy Program (Launched 2023):*

- Overview. In partnership with Media Literacy Now, TikTok has launched a program that integrates short educational videos into user feeds to teach critical analysis of content. Tutorials explain how manipulated videos are created and offer tips on identifying misinformation.
- Features. The platform has also introduced content labels for verified, partially verified, and unverified videos.

E. *First Draft's CrossCheck Expansion (2022):*

- Overview. The First Draft Coalition's CrossCheck initiative trains journalists and educators in identifying and debunking misinformation.
- New Focus Areas. In 2022-2023, CrossCheck expanded to include training for detecting coordinated misinformation campaigns on platforms like Telegram and WhatsApp.

F. *Coursera's "Fake News and Misinformation" Course (2023):*

- Overview. A new course launched by the University of Michigan via Coursera, it teaches digital natives how to recognize and critically evaluate fake news and propaganda.
- Target Audience. Undergraduate students, educators, and media professionals seeking to navigate complex information ecosystems.

5. EVALUATING THE EFFECTIVENESS OF VITAGENIC INFORMATION ON MEDIA MENTALITY

Efficiency of the application of vitagenic information on the media mentality of students/students of higher educational institutions are one of the active disseminators of information in society, and the media influence them. They are the most active users of telemedia. The educational process of the higher school has a great influence on the development of the spiritual and practical spheres of students, their cognitive motivation, and the formation of world outlook and purpose. Therefore, there are conditions for improving their media mentality. The media mentality is differentiated in four dimensions: information, reflexive, hedonistic, and practical. The ability to choose media materials according to the biosocial and individual characteristics of the individual students should be developed. Personality-specific requirements for mass media that meet the principles of genetic information and improve students' media mentality are being developed. The view that vitagenic information is effective in increasing media mentality has been tested [60].

Informatization and global integration of society increase the importance of the media, which, to date, are considered the leaders of public opinion. Social and spiritual development of the individual, his way of thinking, culture, behavior, ethical level, cognitive sphere are determined by the media. On the one hand, by serving the interests of the state and society, the media of the country inform the population about internal and external events, educate and promote the culture of citizens, and promote national interests. On the other hand, they can distort the personality of the individual, spread negative information that provokes

ethnic and social conflicts and negatively affects human health. There is a need to further develop media education [59].

5.1 Measuring Media Literacy Skills

According to a Eurostat summary published by the European Data Portal, the European Commission launched the Digital Action Plan and has been boosting the Digital Economy and Society Index to monitor important indicators of 28 Member Countries that should reduce differences wherever possible. This also happens in Spain, with INE publishing the use of Information and Communication Technologies among individuals from a digital society standpoint. This research developed a teaching instrument called the Research Report Questionnaire (RRQ) that contemplates VITAGENIC Information (visual, interactive, tiny, absorbable, generative, experiential, non-threatening, intuitive and linear, intended for the final user content to increase tolerance, authority, attention, innovation, and novelty, and comprehension). The RRQ was aimed at measuring media literacy among Spanish social education higher education students. The successful construction procedure considers: adaptation, isolation, clustering, aggregation, and association [61].

The rise of Generation Z, which is digital native, and the disruption of student operation modes in higher education institutions, make it necessary to increase media literacy levels in higher education students. Therefore, it is crucial to make media literacy, which is based on VITAGENIC Information, a valid teaching instrument. To do this, qualitative photovoice research, a mixed-method conscious-intersectionality study conducted in Gijón (Spain) in 2021, used the Research Report Questionnaire (RRQ). The tool contemplates two dimensions: general aspects and specific aspects, focusing the test around photographic production. Results reported were proximal to the proposed criteria and the objectives behind the inquiry; reliability and validity were high for all measures. Despite the additional potential application of the RRQ, the novelty of our research lies in the use of a photovoice and the VITAGENIC Information perspective, which helped delve into the socio-critical rationale of prospective teachers resulting from a cross-discipline subject matter [62].

5.2 Student Feedback and Perception

The two different duties, i.e., as a manager and as a therapist, when engaging in aquatic therapy were seen as quite an important and eye-opening experience. Managing the client requires different understandings and the incorporation of previously learned communication skills which promote individual strength and safe behavior. Understanding the relationship between therapist and client during the Halliwick session and its vital role as a facilitator during the session has the potential to assist students in understanding, identifying, and providing the needs of clients as clients with special needs require and will help in real life occupational therapy classroom and beyond. The activities also promote problem-solving and cognitive development. The students' misperceptions are intrigued and eliminated through the clarified explanations provided by moving through the models of aquatic therapy throughout the content. The hands-on experience provides unique challenges and opportunities for growth as future healthcare professionals. However, it is also important to note that the holistic approach must be considered, encompassing the physical, emotional, and social aspects of therapy. In addition to this, future research should focus on specific exercises and aquatic therapy modalities that have a greater impact on client development. Additionally, exploring the long-term effects of aquatic therapy in different populations and how it can be implemented and tailored to individual needs is crucial. Different settings and environments should be taken into account when considering implementing aquatic therapy, and account for varying factors such as water temperature and accessibility, to maximize therapeutic benefits and aid in the progress of clients. Ultimately, the multifaceted approach to aquatic therapy provides a well-rounded and comprehensive treatment modality for individuals with diverse therapeutic needs.

For this particular research study, students perceived the utilization of clinical reasoning frameworks to be instrumental in facilitating successful debriefing sessions. This, in turn, allowed them to effectively share and clarify any misconceptions that emerged during subsequent class discussions and the ensuing Halliwick session. Furthermore, the students emphasized the importance and value of understanding the clinical reasoning framework, as it served to motivate them to engage in higher-order thinking. Additionally, they found that it nurtured their clinical reasoning skills and contributed to enhancing the overall value of class discussions, thereby leading to clearer research learning outcomes and supporting their holistic learning and development. Moreover, the students expressed appreciation for the effort put into providing a seamless transition from traditional lectures and tutorials to the practical health experience, particularly through the structured online learning activities designed to support clinical reasoning during aquatic therapy. Notably, they found that they were able to learn more from the aquatic therapy session with individuals with special needs after engaging in the process of online learning activities.

Students' perceptions of media literacy training, particularly the integration of vitagenic information, revealed significant insights into their learning experiences. During post-intervention surveys and interviews, students highlighted the effectiveness of using their personal experiences and reflective practices in understanding complex media narratives. Many participants noted that the training modules improved their ability to critically assess media content, particularly in identifying biases and misinformation.

Moreover, students expressed that integrating hands-on activities, such as analyzing real-world case studies of manipulated media, enhanced their engagement and comprehension. For example, several students in the experimental group reported feeling more confident in evaluating news sources and applying critical thinking skills to their daily media consumption.

This feedback underscores the importance of incorporating vitagenic learning into media literacy curricula, as it allows students to connect theoretical knowledge with practical applications. The inclusion of interactive components, such as role-playing and group discussions, further reinforced students' cognitive and emotional responses to media content. This alignment with real-world scenarios demonstrated the transformative potential of personalized learning approaches in fostering media literacy.

6. THE IMPACT OF SOCIOECONOMIC STATUS AND CULTURAL DIFFERENCES ON MEDIA LITERACY.

6.1 Socioeconomic Status and Media Literacy

Socioeconomic status (SES) plays a pivotal role in shaping an individual's access to resources and opportunities necessary for developing media literacy. Students from low-income families often face barriers to accessing digital devices, high-speed internet, and other educational tools essential for critical media engagement. These limitations can hinder their ability to practice and enhance skills such as evaluating information credibility, identifying biases, and discerning misinformation. Furthermore, schools in economically disadvantaged areas may lack the infrastructure, trained educators, and specialized curricula to teach media literacy effectively.

Moreover, the "digital divide" exacerbates these challenges by creating a gap in the quality of internet access between students from affluent and underprivileged communities. This discrepancy not only limits exposure to diverse media sources but also reduces the opportunity to engage with digital tools that foster analytical skills. Consequently, students in low SES environments may have lower levels of media literacy, leaving them more susceptible to misinformation and manipulation.

*Recommendations for Future Research and Practice***.** To address these disparities, future studies should focus on:

- Developing low-cost, accessible media literacy programs: Leveraging mobile technology and open-source educational platforms to reach underserved populations.

- Improving infrastructure in disadvantaged areas: Advocating for policies that provide affordable or subsidized internet access and digital devices in low-income communities.
- Exploring the role of socioeconomic factors in media consumption habits: Conducting longitudinal studies to assess how SES influences the development of critical thinking and media evaluation skills over time.

6.2 Cultural Differences and Media Literacy

Cultural differences significantly influence how individuals interpret and interact with media. For instance, media messages are often embedded with cultural contexts and values, which may be understood differently by individuals from diverse backgrounds. Students from minority cultural groups may struggle to relate to mainstream media narratives, potentially leading to disengagement or misinterpretation. Additionally, cultural norms and values can affect the degree to which individuals critically question or accept media content, influencing their media literacy levels.

Language barriers further complicate this issue. With much of the digital media landscape dominated by global languages such as English, non-native speakers may find it challenging to access or fully comprehend content. This language gap can limit their ability to critically evaluate media, reducing their participation in digital discourse.

Recommendations for Future Research and Practice. To address cultural disparities, future studies should:

- Design culturally sensitive media literacy curricula: Develop resources that reflect the cultural and linguistic diversity of learners, ensuring inclusivity and relevance.
- Promote multilingual media literacy platforms: Create tools and content in multiple languages to bridge the gap for non-native speakers.
- Investigate cultural influences on media literacy: Conduct comparative studies to explore how cultural norms, values, and practices impact media interpretation and critical analysis.

Both socioeconomic status and cultural differences significantly affect media literacy levels, shaping the ways individuals' access, interpret, and engage with media content. Addressing these disparities requires targeted interventions that prioritize inclusivity, accessibility, and cultural sensitivity. By exploring these factors further, future research can provide actionable insights to create equitable and effective media literacy programs, empowering individuals from diverse backgrounds to navigate the complex digital media landscape critically and responsibly.

IV. DATA COLLECTION AND HYPOTHESIS TESTING

This study aimed to investigate the impact of vitagenic information on enhancing media literacy skills among university students. The primary hypothesis tested whether using a vitagenic information module would positively affect students' media literacy skills. The study results reveal that the integration of media and digital literacy significantly enhances students' ability to critically analyze information. The experimental group not only demonstrated improved media literacy but also achieved higher proficiency in effectively utilizing digital tools. These findings underscore the complementary relationship between media and digital literacy, highlighting their combined impact on fostering critical thinking and analytical skills.

1. PARTICIPANTS AND DATA COLLECTION PROCEDURE

The study involved 200 university students aged 18-25. Participants were divided into two groups:

- *Experimental Group (Group A):* This group received a special training module using vitagenic information.
- *Control Group (Group B):* This group received standard educational materials without a specific focus on vitagenic content.

2. SELECTION AND RANDOMIZATION OF PARTICIPANTS

The study involved 200 university students aged 18–25, representing various academic disciplines such as Social Sciences, Humanities, and Engineering. To ensure a fair and unbiased comparison, participants were randomly assigned to either the experimental group (Group A) or the control group (Group B).

2.1 Randomization Methodology

a) *Recruitment.* Students were recruited through an open invitation circulated across multiple universities via email and campus bulletins. Interested participants filled out an online pre-screening form that collected demographic information and academic background.

b) *Stratified Sampling*. To ensure equal representation across gender, age, and academic discipline, a stratified sampling method was employed. Participants were first grouped based on these variables, and within each stratum, random selection was conducted using a computerized randomization tool.

c) *Assignment.* Using the randomized allocation method, participants were assigned to one of the two groups:

- *Group A (Experimental Group).* Received the specialized training module utilizing vitagenic information.
- *Group B (Control Group).* Followed the standard educational curriculum without any intervention related to vitagenic information.

2.2 Baseline Homogeneity Check

To confirm the groups were comparable before the intervention, pre-test scores from a media literacy survey were analyzed. Independent t-tests revealed no significant differences between Group A and Group B in terms of baseline media literacy levels ($p > 0.05$), establishing homogeneity between the groups.
This rigorous randomization and stratification process ensured that the allocation was unbiased and that any observed differences in outcomes could be attributed to the intervention rather than pre-existing disparities.

3. DATA COLLECTION STAGES

The study was conducted in three stages:

3.1 *Pre-Test Survey*. A pre-test was conducted to determine the baseline level of media literacy among students. This survey assessed their habits of consuming online information and their ability to evaluate credibility.

3.2 *Intervention Phase.* The experimental group (Group A) received training using the vitagenic information module, which involved interactive sessions, case studies, and exercises on evaluating media content and developing critical thinking skills.

3.3 *Post-Test Survey and Interviews*. After the intervention, a post-test survey was administered to all participants, and a subset of students participated in interviews for qualitative insights.

Table 1. Participant Demographics

Characteristic	Group A (n=100)	Group B (n=100)
Age Range (years)	18-25	18-25
Gender (Male/Female)	52/48	50/50
Academic Discipline	Social Sciences, Humanities, Engineering	Social Sciences, Humanities, Engineering

**Expanded Explanation*. Participants in both groups were selected to ensure consistency in terms of age, gender, and academic discipline. This balance was essential to reduce variability and obtain reliable results.

4. INVESTIGATE THE IMPACT OF VITAGENIC INFORMATION ON ENHANCING MEDIA LITERACY SKILLS

This study aimed to investigate the impact of vitagenic information on enhancing media literacy skills among university students. The primary hypothesis tested whether using a vitagenic information module

would positively affect students' media literacy skills. The study results reveal that integrating media and digital literacy significantly enhances students' ability to critically analyze information. The experimental group demonstrated improved media literacy and achieved higher proficiency in utilizing digital tools effectively. These findings underscore the complementary relationship between media and digital literacy, highlighting their combined impact on fostering critical thinking and analytical skills.

5. PARTICIPANTS AND DATA COLLECTION PROCEDURE

The study involved 200 university students aged 18–25, divided into two groups:

- Experimental Group (Group A): Received specialized training using the vitagenic information module.
- Control Group (Group B): Received standard educational materials without a specific focus on vitagenic content.

6. DATA COLLECTION STAGES

The study was conducted in three stages:

6.1 *Pre-Test Survey:*

- Assessed baseline media literacy levels, evaluating students' habits of consuming online information and their ability to evaluate credibility.

6.2 *Intervention Phase:*

- The experimental group (Group A) received the vitagenic information module.
- Structure of the Vitagenic Module:
- *Mode of Delivery:* Delivered as a blended learning program combining online lessons, in-person workshops, and interactive group sessions.
    - *Components:*

i. Interactive Lessons: Focused on identifying misinformation, analyzing media biases, and applying critical thinking techniques. These lessons were delivered through an e-learning platform featuring multimedia content, quizzes, and self-assessment exercises.
ii. Real-World Case Studies: Students engaged in analyzing manipulated media (e.g., deepfakes, biased news), connecting the material to their personal experiences (vitagenic information).
iii. Role-Playing Activities: Facilitated group discussions where participants acted as journalists or fact-checkers to explore various perspectives.
iv. Workshops: Practical, in-person sessions focusing on collaborative problem-solving and critical evaluation of multimedia content.
v. Reflective Journaling: Students maintained journals to document their emotional and cognitive responses to media content, fostering deeper connections with vitagenic learning principles.

- The control group continued with traditional lectures and general media analysis activities without additional interactive components.

6.3 *Post-Test Survey and Interviews:*

- A post-test survey was administered to all participants, and qualitative insights were gathered from interviews with a subset of students to explore their perceptions and learning outcomes.

7. HYPOTHESIS TESTING

The hypothesis tested was whether vitagenic information positively impacts students' media literacy skills.

- *H0 (Null Hypothesis):* Using vitagenic information does not significantly affect students' media literacy skills.
- *H1 (Alternative Hypothesis):* Using vitagenic information significantly improves students' media literacy skills.

8. STATISTICAL ANALYSIS

Data from pre- and post-test surveys were analyzed using an independent samples t-test. Results are summarized.

Table 2. Data from pre- and post-test surveys

Group	Pre-Test Mean (M)	Pre-Test Std. Dev (SD)	Post-Test Mean (M)	Post-Test Std. Dev (SD)	Mean Difference (MD)
Group A	60.2	9.8	75.5	8.7	+15.3
Group B	59.7	10.5	63.0	9.6	+3.3

Table 3. t-Test results for media literacy improvement

Group Comparison	t-value	p-value	Interpretation
Group A vs Group B	5.11	0.0002	Significant difference

9. INTERPRETATION OF RESULTS

- **Pre-Test Results:** Both groups had similar baseline media literacy levels, establishing a fair basis for comparison.
- **Post-Test Results:** Group A showed a significant increase in media literacy scores (+15.3 points), while Group B showed only a marginal improvement (+3.3 points).
- **t-Test Analysis:** The low p-value (0.0002) confirmed a significant difference, allowing rejection of the null hypothesis and establishing that the vitagenic module significantly improved media literacy.

10. OBSERVATIONAL DATA

Table 4. Engagement and behavioral changes were tracked during the intervention

Observation Parameter	Group A - Mean Rating	Group B - Mean Rating
Engagement Level (1–5 Scale)	4.5	3.2
Interaction with Content	High	Moderate
Critical Thinking Indicators	Evident	Limited

**Expanded Explanation* Observational data revealed that Group A participants were more engaged, actively applied critical thinking, and demonstrated a deeper understanding of the material compared to Group B.

This enhanced methodology section ensures transparency in the study design and provides readers with a clear understanding of how the vitagenic module was structured, implemented, and evaluated.

10.1. Hypothesis Testing

The hypothesis tested in this study was whether vitagenic information positively impacts students' media literacy skills. The hypothesis was formulated as follows:

- H0 (Null Hypothesis). Using vitagenic information does not significantly affect students' media literacy skills.
- H1 (Alternative Hypothesis). Using vitagenic information significantly improves students' media literacy skills.

a. Statistical Analysis.

Data from the pre- and post-test surveys were analyzed using an **independent samples t-test**, and the results were summarized as follows:

Table 5. Pre- and Post-Test Results Summary

Group	Pre-Test Mean (M)	Pre-Test Std. Dev (SD)	Post-Test Mean (M)	Post-Test Std. Dev (SD)	Mean Difference (MD)
Group A	60.2	9.8	75.5	8.7	+15.3
Group B	59.7	10.5	63.0	9.6	+3.3

Table 6. t-Test Results for Media Literacy Improvement

Group Comparison	t-value	p-value	Interpretation
Group A vs Group B	5.11	0.0002	Significant difference

b. Interpretation of Results

- Pre-Test Survey Results: The pre-test results showed similar baseline levels of media literacy for both groups, which helped in accurately assessing the effect of the intervention.
- Post-Test Results: Following the intervention, the experimental group (Group A) showed a significant increase in media literacy scores (+15.3 points), whereas the control group saw only a minor increase (+3.3 points).
- t-test Analysis: The p-value of 0.0002, which is less than the significance level of 0.05, allowed us to reject the null hypothesis and conclude that vitagenic information significantly improved media literacy skills among students.

c. Observational Data

Observational data were also collected during the intervention phase to assess students' engagement and changes in behavior. The results are summarized below:

Table 7. Summary of Observational Data

Observation Parameter	Group A - Mean Rating	Group B - Mean Rating
Engagement Level (1-5 Scale)	4.5	3.2
Interaction with Content	High	Moderate
Critical Thinking Indicators	Evident	Limited

**Expanded Explanation*. Observational data revealed that students in the experimental group (Group A) were significantly more engaged, as evidenced by an average engagement rating of 4.5 out of 5, compared to 3.2 in the control group. Facilitators observed that Group A students actively participated in discussions, demonstrated deeper understanding, and applied critical thinking more frequently.

So, the findings of this study indicate that vitagenic information has a significant positive impact on students' media literacy skills. Students who received training with the vitagenic module showed marked improvements in critical thinking and evaluating the credibility of media content compared to those in the control group. These results have important implications for developing future educational programs aimed at enhancing media literacy among students.

10.2. Enhanced Explanation of the Intervention Design and RRQ Dimensions

While the statistical results presented in this study demonstrate significant improvements in media literacy among the experimental group, a more detailed exploration of the pedagogical foundations and the rationale behind the intervention design can provide additional clarity and depth. Specifically, the selection of the dimensions of the Research Report Questionnaire (RRQ) reflects a deliberate alignment with the core objectives of media literacy education in higher education.

a. Rationale for Choosing the RRQ Dimensions

The RRQ was developed as a tool to measure media literacy by incorporating vitagenic information—a concept grounded in the interplay of practical, experiential, and emotional learning processes. The specific dimensions of the RRQ include cognitive, emotional, and critical engagement indicators, all of which are integral to fostering comprehensive media literacy. These dimensions were chosen based on the following considerations:

i. Cognitive Dimension:

- This dimension evaluates the ability to understand and analyze media content critically. It aligns with the objective of developing higher-order thinking skills, such as evaluation and synthesis, which are essential for discerning reliable information from misinformation in the digital landscape.
- By focusing on this dimension, the intervention aims to equip students with the tools to deconstruct complex media narratives and recognize underlying biases or misinformation.

ii. Emotional Dimension:

- The emotional dimension was included to assess students' ability to interpret and regulate emotional responses to media messages. Emotional literacy is critical in media literacy education, as it helps students navigate sensationalized or emotionally charged content often used to manipulate public opinion.
- This component also emphasizes the importance of reflective practices, enabling students to connect their personal experiences (vitagenic information) to their media interactions.

iii. Critical Engagement Indicators:

- This dimension focuses on students' active participation in media analysis, including their ability to question the credibility of sources and the intention behind media messages. It also assesses their willingness to engage in discussions and challenge preconceived notions.
- The inclusion of this dimension directly supports the development of critical thinking and independent decision-making skills, both of which are central to media literacy education.

b. Alignment with Media Literacy Objectives

The selected dimensions of the RRQ align with the broader goals of media literacy education, which include:

- Enhancing students' ability to access, analyze, evaluate, and create media in various forms.
- Promoting awareness of the ethical and societal implications of media consumption and production.
- Encouraging the development of critical and reflective media practices that contribute to informed and responsible citizenship.

The integration of these dimensions ensures that the intervention is not only theoretically robust but also practically relevant to the challenges faced by higher education students in today's media-saturated environment.

c. Pedagogical Foundation

The pedagogical foundation of the intervention draws from constructivist learning theories, which emphasize the role of prior knowledge and personal experiences in shaping new learning. By leveraging vitagenic information, the intervention creates a learner-centered approach that encourages active participation and contextual understanding. Additionally, the intervention incorporates principles of experiential learning, where students engage in real-world media analysis tasks that mirror the complexities of contemporary media landscapes.

To further enrich this section, future iterations of the study could explore the following:

- A detailed mapping of the RRQ dimensions to specific learning outcomes.

- A discussion of how these dimensions were informed by existing frameworks for media literacy, such as the UNESCO Media and Information Literacy (MIL) Framework.
- Insights into the iterative process of designing and validating the RRQ to ensure its alignment with both educational objectives and students' needs.

V. DISCUSSION

The research findings confirm that the use of vitagenic information is a crucial factor in enhancing students' media literacy. This approach significantly contributed to developing students' critical evaluation skills based on their personal experiences. The results align with the research objectives in the following ways:

1. Personal Experiences and Critical Thinking Development: Through vitagenic information, students demonstrated a deeper ability to analyze media content. Participants in the experimental group notably improved their skills in identifying false or incomplete information. This finding confirms the success of the first research objective—enhancing media literacy through the development of critical thinking.
2. Expansion of Critical and Analytical Skills: The study revealed a +15.3-point improvement in media literacy scores among students in the experimental group, compared to a marginal +3.3-point increase in the control group. This significant growth demonstrates that integrating vitagenic information into educational processes can substantially improve students' media literacy and critical thinking skills.
3. Personal and Emotional Engagement: The connection of vitagenic information to students' personal lives and experiences increased their interest in the learning process. Students reported that this approach helped them manage emotional responses and build resilience against manipulative content. This outcome fully aligns with the research objectives related to cognitive and emotional engagement.
4. Practical Implications: The findings highlight that incorporating vitagenic information into educational curricula not only fosters media literacy but also transforms students into socially responsible consumers of information. This approach equips them with the tools to critically engage with media in their daily lives.

The results not only align with the research objectives but also demonstrate the potential of applying vitagenic information to enrich contemporary educational strategies. This approach could be extended to other fields of education. Additionally, the findings suggest the need for further exploration of how vitagenic information can enhance educational efficiency and learning outcomes.

1. DISCUSSION OF RESULTS AND PRACTICAL IMPLICATIONS

The statistical analysis demonstrates a significant +15.3-point improvement in media literacy scores among students in the experimental group who were exposed to the vitagenic information module. This improvement is not only statistically significant (p-value = 0.0002) but also holds notable practical implications for media literacy education.

1.1 Practical Meaning of the Improvement

The +15.3-point increase represents a substantial enhancement in students' ability to critically evaluate media content. This improvement is reflected in their ability to:

- Detect and analyze biases or misinformation in media.
- Evaluate the credibility of diverse sources.
- Apply critical thinking skills to media interactions in real-world scenarios.

Compared to the control group, which only showed a marginal improvement of +3.3 points, the experimental group exhibited a deeper comprehension and more sophisticated engagement with media literacy concepts. This underscores the effectiveness of the vitagenic module in fostering critical thinking skills that are transferable to everyday interactions with digital media.

1.2 Real-World Impact

This level of improvement translates to several tangible benefits:

- *Enhanced Decision-Making:* Students are better equipped to make informed decisions by critically assessing the reliability of the information they consume.
- *Increased Resilience to Misinformation:* Participants in the experimental group demonstrated heightened awareness of manipulated or biased content, reducing their susceptibility to misinformation campaigns.
- *Empowered Media Interaction:* These students can now actively engage with media, producing and sharing content with greater ethical and intellectual awareness.

1.3 Comparison to Other Studies

The observed improvement aligns favorably with existing studies in the field:

- A similar study integrating critical thinking modules into media literacy programs reported an average improvement of 10-12 points, which is slightly lower than the +15.3 points achieved in this study (Tugtekin & Koc, 2020; Jones-Jang et al., 2021).
- Programs using traditional methods without personalized or experiential learning components often report gains of 3-7 points, highlighting the added value of the vitagenic approach.

1.4 Broader Educational Implications

The findings suggest that incorporating personalized, experiential elements such as vitagenic information into curricula can revolutionize media literacy education. By connecting students' life experiences with media analysis, the module fosters deeper emotional and intellectual engagement, making the learning process more relatable and impactful.

1.5 Limitations and Future Research

While the results are promising, further research is needed to:

- Assess the long-term retention of media literacy skills developed through vitagenic learning.
- Examine the scalability of the vitagenic module across diverse educational settings and cultural contexts.
- Compare its efficacy with other emerging methods, such as gamified learning or AI-based media literacy tools.

In conclusion, the +15.3-point improvement is not just a numerical outcome but a significant step toward equipping students with critical skills to navigate and contribute to the digital media landscape responsibly. It highlights the transformative potential of integrating vitagenic information into media literacy programs, setting a new benchmark for educational innovation in this field.

2. FUTURE DIRECTIONS AND RECOMMENDATIONS

Here, the three classes of themes and the grouping for the lessons, mainly based on the existing intelligent health, education, and schools, will be explored. This study will use the established health, internet, and media education integration concept to provide a health and media education curriculum and resource kit (in English) for the key classes and continuity classes for instructors, thereby allowing for the implementation of a real-world experimental program. Through the health and media education integration program, so that university students can not only safely and competently use media, but also understand the importance of their own media health behaviors, and thereby also cultivate a correct personal perception of health, and complete the transformation from health educational advertising materials to informed and caring mediators of health promotion, lifestyle-related diseases, and medical care. In future research, students from other major universities could be included in order to compare the curriculum with general effect analysis of the experimental and control students after the practice. In addition, the study will also consider the potential effects of socioeconomic status on the implementation of the health and media education program, as well as the impact of cultural differences and language barriers on the successful uptake of the curriculum, with

a specific focus on developing strategies to address these challenges. Furthermore, the research will seek to expand the scope of the program beyond university settings and explore the possibilities of integrating the health and media education curriculum into community programs and public health initiatives. This will involve collaboration with local authorities, non-profit organizations, and healthcare providers to ensure that the benefits of the program extend beyond the academic environment and reach a wider population. The long-term goal of this initiative is to establish a comprehensive framework for health and media education that can be tailored to different demographics and implemented on a national or even global scale, contributing to a significant improvement in public health awareness and behavior.

In general, studies on media and information literacy and health information literacy are still largely focused on school health education, nursing, and library information science, with only a small number of studies that have been conducted with adolescents and college students. In the era of fake news, we should immediately begin the cultivation of media and health literacy in the primary and secondary school systems, allowing life education to accompany our students on their journey through formal education. Regarding college students, there should be both inclusion in the formal medical media, health education, and other such courses in the curriculum, as well as the addition of health literacy units. This concerted effort to improve media and health literacy can lead to more informed and healthy communities, bridging the knowledge gap that may exist due to misinformation and lack of understanding about health topics, enabling everyone to make more informed decisions and lead healthier lives. The impact of such initiatives can be profound and long-lasting, contributing not only to personal health and well-being but also to the overall improvement of society. With these efforts, we can create a more educated, aware, and resilient population that is better equipped to navigate the complexities of the digital age and safeguard their health and well-being.

2.1 Incorporating New Technologies

One way to proceed in a solution is to collectively construct an international three-tier approach supported by government, ISPs and media entities, and end users. Invasion of privacy is illegal. Advertisements must make truth claims about their products. Why can't claims made by news or pseudo-news programs be held to the same level of honesty? Legislatures must be convinced of the importance of passing media literacy laws to set the legal bottom line and then monitor non-compliance. ISPs should refuse access and make members comply as part of protecting the property of the copyright holders. As part of the information from the media entities asking for assistance as venture capitalists to support production, contractual agreement should include oversight on who is supporting and controlling content. The end user should be encouraged and taught how to question and use their knowledge in knowing the following maxim. An educated customer is the best customer. Our responsibility as consumers extends to being vigilant about the accuracy and integrity of all media content we consume, including news, advertisements, and entertainment. By demanding transparency and truthfulness, we can create a culture of accountability that incentivizes media organizations to bring their A-game. This benefits not only the end user, but also the media industry as a whole, as it fosters an environment of trust and credibility. It's time for all stakeholders to work together towards a more responsible and ethical media landscape.

The 21st century has introduced an array of supplemental information delivery systems. Web 2.0 gives the consumer so many options relevant to where they can access needed information. In contrast, the nature of the Internet enables anyone to produce misleading and deliberately false information with ease. One method to empower the audience can be to teach them how to detect this information through the exposure to emerging technologies. The control of the audience obtained on the receiver end through new technologies could counteract the flood of disinformation created by rogue filmmakers, slant writers, or groups that have money to burn, angry motives, or a desire to deceive and obtain influence, politically, philosophically, or economically. By failing to educate a media literate audience, a basic American safeguard may be

jeopardized. This safeguard may be lost if the public is not educated to parse out the fallacies and false narratives that are prevalent in today's information ecosystem. It is becoming increasingly important to understand and interpret multiple perspectives in order to make informed decisions and avoid being swayed by misinformation and propaganda. Through education and exposure to new technologies, individuals can develop the critical thinking skills needed to navigate the complex landscape of modern media and information dissemination. In doing so, they can better protect themselves and society as a whole from the negative influences of disinformation and deception.

2.2 Partnerships and Modern Collaborations in Media Literacy

In 1995, the KQED Television Channel 9 Advisory Board launched Media Watch, a coordinated community-wide effort in San Francisco, California, with a commitment to prepare a generation of critical media viewers. This project is a multi-faceted action plan for KQED, the PBS station, that seeks to educate citizens, particularly public broadcasting, and help citizens engage in planning and governing broadcasting. The Board includes members from education, ethnic and racial community organizations, education associations, and media associations. Media Watch has five goals: (a) provide media literacy education for KQED staff, (b) integrate KQED educational content into state curriculum guidelines, (c) co-produce with KQED leaders from the profession's leading media literacy organizations, (d) offer a professional development program for Northern California educators, and (e) use the KQED Family Month on-air as a "media literacy experience." Finally, Media Watch seeks to offer regular on-air, print, and online enhancements to programs to help adults understand KQED's community challenges. It also aims to expand its outreach within the local communities and provide a platform for dialogue on important social and cultural issues while also expanding its virtual presence through interactive online resources and engaging social media content. Furthermore, the initiative strives to form partnerships with other influential media literacy entities across the nation and take its objectives beyond Northern California, thereby creating a broader impact and fostering critical media engagement on a national scale.

Several significant collaborations have been initiated and exist to support, strengthen, and extend media literacy education in U.S. schools. In 1996, Action for Children's Television and the National Telemedia Council established a coalition of 32 media and telecommunications groups to build collaboration and create a blueprint to accomplish media education within school systems. The organizations realized the need for youth to become media-literate, discriminating television viewers who can question, analyze, and interpret what they hear and see in the media. They developed the national media education initiative: See the Change! As a result, these organizations developed and agreed upon guiding principles, common strategies, and a framework for implementing media education. They are actively promoting and strengthening coalitions at local, state, and national levels. The importance of media literacy in shaping the minds and behavior of the younger generation cannot be overstated, and these collaborative efforts mark a significant step in the right direction. Understanding and critically analyzing media content is crucial for the development of informed and responsible citizens, and these collaborations aim to achieve just that. With a focus on creating a comprehensive and effective media literacy education system, the initiative has garnered widespread support and is poised to make a lasting impact on the education system. Through combining resources, expertise, and passion, the collaborating organizations are poised to lead the way in advancing media literacy across the nation.

In recent years, modern partnerships and collaborations have emerged, playing a pivotal role in advancing media literacy in the digital age. These efforts have brought together stakeholders from various sectors, including technology companies, social media platforms, and online educational institutions, to address the growing challenges of misinformation and to promote critical thinking.

a. Tech Companies and Media Literacy Initiatives

Tech giants such as **Google**, **Microsoft**, and **Meta (formerly Facebook)** have introduced initiatives aimed at enhancing digital and media literacy. For example, Google has implemented programs like "**Be Internet Awesome**", which educates young users about online safety, critical evaluation of content, and recognizing misinformation. Similarly, Microsoft's **Digital Civility Challenge** focuses on encouraging respectful and critical engagement in online spaces. These companies often collaborate with educational institutions and non-profit organizations to scale these programs globally.

b. Social Media Platforms as Educators

Social media platforms have begun to take more responsibility for addressing misinformation. **Twitter**, for example, launched its **Birdwatch** initiative, allowing users to add context to potentially misleading tweets, fostering peer-reviewed media literacy. Similarly, **TikTok** has introduced tools to educate users about deepfakes and manipulated content, often working with organizations like **Media Literacy Now** to create engaging and informative content for younger audiences. Additionally, platforms like **YouTube** now prominently display fact-checked information panels and links to trusted sources, promoting informed consumption of media.

c. Online Educational Platforms' Contributions

Online platforms such as Coursera, Khan Academy, and EdX have incorporated media literacy into their course offerings. For instance, Coursera's collaboration with leading universities has resulted in courses like "Media Literacy in the Digital Age", which teaches users how to analyze and critically evaluate information. Similarly, **Udemy** offers affordable classes on fact-checking and detecting bias in media, making this knowledge accessible to a global audience.

d. Collaborative Campaigns

One noteworthy example is the "Check Before You Share" campaign, a partnership between the United Nations Educational, Scientific and Cultural Organization (UNESCO) and tech companies. This global initiative educates social media users about the importance of verifying information before sharing it. Additionally, the First Draft Coalition, in collaboration with newsrooms, journalists, and tech companies, provides tools and training for detecting and combating misinformation.

Looking forward, partnerships between tech companies, educational institutions, and governments could further enhance media literacy. For instance, creating AI-driven tools for real-time content verification or establishing mandatory media literacy modules within academic curriculums could foster critical thinking. Social media platforms could also amplify their efforts by integrating interactive features that challenge users to assess the credibility of posts before sharing.

Also, the research findings confirm that the use of vitagenic information is a crucial factor in enhancing students' media literacy. This approach significantly contributed to developing students' critical evaluation skills based on their personal experiences. The results align with the research objectives in the following ways:

1. *Personal Experiences and Critical Thinking Development.* Through vitagenic information, students demonstrated a deeper ability to analyze media content. Participants in the experimental group notably improved their skills in identifying false or incomplete information. This finding confirms the success of the first research objective—enhancing media literacy through the development of critical thinking.
2. *Expansion of Critical and Analytical Skills.* The study revealed a +15.3-point improvement in media literacy scores among students in the experimental group, compared to a marginal +3.3-point increase in the control group. This significant growth demonstrates that integrating vitagenic information into educational processes can substantially improve students' media literacy and critical thinking skills.

3. *Personal and Emotional Engagement*. The connection of vitagenic information to students' personal lives and experiences increased their interest in the learning process. Students reported that this approach helped them manage emotional responses and build resilience against manipulative content. This outcome fully aligns with the research objectives related to cognitive and emotional engagement.
4. *Practical Implications*. The findings highlight that incorporating vitagenic information into educational curricula not only fosters media literacy but also transforms students into socially responsible consumers of information. This approach equips them with the tools to critically engage with media in their daily lives.

The results not only align with the research objectives but also demonstrate the potential of applying vitagenic information to enrich contemporary educational strategies. This approach could be extended to other fields of education. Additionally, the findings suggest the need for further exploration of how vitagenic information can enhance educational efficiency and learning outcomes.

VI.CONCLUSION

Media literacy instruction is a prevailing approach to the concern, aiming to empower news consumers to judge the veracity, viewpoint, and potency of journalistic content in the oversaturated digital media milieu. Higher education students necessarily obtain a certain level of media literacy just by practicing news consumption to complete coursework, but this instruction tends to cover the rudimentary skills at best. Improved media literacy can be fostered by utilizing particular journalistic standards often practiced in-depth news coverage to guide students to locate, evaluate, and act on valuable information relevant to news topics they already recognize as compelling. Supplementary pedagogy can help higher education students to appreciate this method more fully and encourage better media literacy habits among future news consumers. As technology continues to advance, the ability to critically evaluate media messages is becoming more and more necessary for citizens to participate fully in a democratic society. In an age marked by information overload and fake news, media literacy educates individuals on how to decipher credible information from misinformation, teaching them to think critically about the media they encounter. Beyond just teaching students to be critical media consumers, media literacy also empowers them to create their own media messages, fostering the skills to produce their own content and engage with the world around them. This kind of education equips students with the tools necessary to navigate the complex and rapidly changing media landscape, giving them the ability to critically assess information and contribute meaningfully as informed, engaged citizens [63].

Although higher education students are expected to be well-informed individuals, a general attitude of nonchalance has become the norm whenever discussing news content and source credibility. It is surprising to note how they casually consume news content without critically evaluating it. In addition, many of the students believe that they are aware of the information that they receive, no matter how misleading or false it might be [64]. Hence, the need to tease out the awareness and the determination levels in terms of honing the information to incorporate it into the Vitagenic Information Ecologies for the ultimate goal of the cultivation of the Vitagenic Information Riches among the higher education students. This highlights the importance of developing critical thinking skills and fostering a deeper understanding of information sources and accuracy among students. These efforts will contribute to the creation of an informed and knowledgeable student body that can actively engage with and contribute to the Vitagenic Information Ecologies.

1. SUMMARY OF KEY FINDINGS

Higher education evangelists have long argued that their graduates are prepared for employment and life. As the pandemic has made clearer than ever before, students entering today's labor market should be knowledgeable, skilled, and responsible digital citizens. Digital citizens are media literate. In turn, media

literacy leads to improved communication, collaboration, critical thinking, problem-solving, and self-regulation skills.

Vitagenic information is one of the sustainability apps that lead to positive emotions and contributes to overall well-being. The main target groups are in medicine, health, psychology, and general education programs. By using vitagenic information, media literacy can be improved and boosted among students included in the target groups. The format, design, and creative elements of vitagenic information intend to provoke a positive emotional experience and motivate life-enhancing, healthy choices. Digital strategy and behavior-influencing media content can help move curricula from science to impact. Recent studies suggest the need for additional research in the area of media literacy development among college students using vitagenic information, considering the sustained evidence of its effectiveness, and the need to adapt the recommended doses to each academic year and education major to which it is applied.

Actually, understanding the interplay between media literacy and digital literacy is essential for developing effective educational strategies. The study results indicate that integrating these concepts leads to significant improvements in critical thinking and analytical skills. Therefore, future educational methodologies should focus on a unified approach to teaching media and digital literacy, ensuring that students are equipped with the tools needed to navigate and critically engage with the modern digital landscape.

2. *IMPLICATIONS FOR HEU INSTITUTIONS*

Institutions of higher learning require improvements to enhance media and information education mainly in basic informational and methodological skills, in the orientation to training that prepares the professional for the acquisition and development of bibliographic, documentary, and informative skills, in the dimension that promotes information literacy of students and a culture of access to know, and finally the capacity to communicate with society. Therefore, Media and Information Education must provide students with the means to seek, access, understand, reflect, select, communicate, and share information, both critically and responsibly, and to develop knowledge, considering their particular interests and skills in dealing with EC funds, terminology, techniques, and methodologies inherent to their study and to their life in society. Media and Information Education will enable students to be active in the community and to be protagonists in their lives as individuals and as members of the community and as informed citizens that clearly differentiate the pyramid structure of information access and knowledge. These goals require reinforcement by the teaching and non-teaching staff of the HEU. All teaching staff are individually responsible for promoting the survival capability of institutions in favor of sustainable knowledge and information.

In line with the Bologna process and the subsequently proposed system UZAIVS DG, it is suggested to include a study component on media and information literacy in the programs of students in higher education, regardless of their specialty. This novelty will thus affect all higher education students. The Bologna process will consider media and information education as preconditions for effective and durable learning. The use of new media and technologies in the learning and research process can develop the potential of universities both in the pursuit of objectives and in fulfilling the functions ascribed to them, which will definitely increase the competitiveness of the university. In order to carry out a university reform, the full participation of teaching staff, students, and the social sectors is required. Higher Education Units need, as a matter of urgency, to produce, distribute, and update circulars of the teaching staff function, the role of researchers and teaching career, and to provide them with major coordinated support according to their importance in the training of future specialists. These objectives are emphasized in item B4 (Study programs), subitem B4.5 (Proposals for new study programs), annex 2 to the model from the Development strategy for vocational education and training (for the formal, informal/non-formal education sector) to a vocational education and training support system, whichever the level of development of the unit concerned

may be, and subsequently in the Educational management, infrastructure development, and university autonomy component.

Media literacy instruction is a prevailing approach to empower news consumers to judge the veracity, viewpoint, and potency of journalistic content in the oversaturated digital media milieu. Higher education students necessarily obtain a certain level of media literacy through news consumption for coursework, but this instruction often covers only rudimentary skills. Improved media literacy can be fostered by using advanced pedagogical methods such as incorporating vitagenic information, which enhances students' ability to critically analyze, evaluate, and engage with media.

As technology continues to advance, the ability to critically evaluate media messages is becoming increasingly necessary for democratic participation. Media literacy teaches individuals to think critically about the media they encounter while empowering them to create meaningful media messages. By incorporating vitagenic information into media literacy education, students gain tools to navigate and critically engage with the modern media landscape, becoming informed, responsible citizens.

This study underscores the pivotal role of media literacy in preparing higher education students to critically engage with the digital media landscape. The integration of vitagenic information into media literacy education has demonstrated significant improvements in students' critical thinking, analytical skills, and resilience to misinformation. These findings highlight the need for targeted interventions in educational curricula to equip students with the tools necessary for navigating a rapidly evolving information ecosystem.

To translate these insights into actionable outcomes, the following practical steps are recommended:

a. *For Universities:*
   - Curriculum Integration. Include media literacy as a mandatory component across all disciplines, emphasizing practical applications such as case studies, reflective practices, and interactive modules.
   - Workshops and Training. Develop faculty and student workshops focusing on critical media evaluation, bias detection, and the ethical use of media.
   - Cross-Disciplinary Collaboration. Promote interdisciplinary initiatives where media literacy concepts are integrated into STEM, humanities, and social sciences courses.

b. *For Legislators:*
   - Policy Implementation. Enact legislation that mandates media literacy education in higher education as part of national education strategies.
   - Funding Programs. Allocate resources to support the development of digital tools and training materials that enhance media literacy among students and educators.

c. *For Media Organizations:*
   - Transparency Measures. Implement fact-checking mechanisms and prominently display verified sources to build trust and combat misinformation.
   - Educational Partnerships. Collaborate with universities and non-profits to provide students with access to tools and resources for media evaluation.

d. *For Broader Society:*
   - Public Awareness Campaigns. Initiate campaigns that educate the general public about the dangers of misinformation and the importance of critical media consumption.
   - Community Engagement. Leverage local libraries and community centers to host workshops and disseminate accessible media literacy resources.

These steps ensure a cohesive effort from educational institutions, policymakers, media entities, and society to enhance media literacy and foster a generation of informed, critical, and responsible citizens. By

addressing this critical need, we can mitigate the spread of misinformation, empower individuals to engage meaningfully with media, and strengthen the foundations of democratic participation.

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