Social Networking and Misinformation Challenges: Moroccan Students in Tertirary Education as a Case Study

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Abstract

This paper focuses on examining how Moroccan university students approach the various social networking sites, including their self-perceived capacities to critically analyze and evaluate digital content in general and online news and information more specifically. The paper poses several research questions that all aim to investigate the issue under examination. This empirical endeavor used the survey as a research instrument to gather data, and presented a number of conclusions and recommendations for the Moroccan policy makers, stakeholders, and all concerned parties. The study further reported that most respondents advance by critically evaluating social media content and largely deploying various efficient verification measures and techniques. In the same vein, the majority of respondents highly rated their digital media perceived self-efficacy. Almost two thirds of the participants postulate that higher educational institutions should incorporate digital literacy skills in their curricula and syllabi.

Keywords: Moroccan, Social, Media, Digital, Literacy, University

Introduction

Amongst the most valuable merits of social media that have almost entirely revolutionized contemporary lifestyles and molded daily practices is their ability to usher in novel communication patterns, reinvigorate interpersonal and intimate spaces, and allow for unrestricted modes of social,

economic, and civic expressions. According to Kaplan and Blakley (2009), the public sphere is conquering more terrain, thus becoming less confined and more dynamic. Nonetheless, this presumably alluring and tantalizing landscape is often lamented by many sceptics who vehemently contend that the deluge of information flow on social networking sites (SNS) poses genuine ethical, intellectual, sociocultural, educational, and political challenges. Several scholars have shown that the abundance of online information has made it even harder for users, including the more talented and skilled ones, to discern genuine content from fake and deceptive news and information (Ott et al., 2011; Rizana et al., 2023).

Certainly, many studies have demonstrated that this complexity stems from multiple sources, including the difficulty to access reliable and credible sources of information, the lack of strong state media outlets, and the deployment of sophisticated technological procedures and advanced techniques by false news producers (Kumar & Shah, 2018; Wei et al., 2023). According to Martens et al. (2018), about two thirds of news seekers feed on social media sites and channels to get informed about the latest events and current issues. Hence, fake reports, news stories, and reviews seem to have pervaded almost all domains, ranging from political, social, and economic spheres to environmental and health areas. Disinformation generates confusion and instability which in turn weakens popular faith in mainstream media outlets and all social media platforms. As of 2017, the traffic of fake news on social media had reached the high rate of 42% (Gallup, Edelman, Alexa, 2017, as cited in Pesonen, 2018). This further makes the issue of misinformation and disinformation a thorny multidisciplinary sociological phenomenon that require thorough reflections to gauge its multi-levelled dimensions and far-reaching implications. The main objective of this study is to explore how Moroccan students with tertiary education level approach the various social networking sites, including their self-perceived capacities to critically analyze and evaluate digital content in general and online news and information more specifically. The paper equally seeks to reflect and share insights on an increasingly complex socio-technical problem pertaining to the generation, propagation, and management of disinformation.

Rationale, Significance, and Literature Review

At the outset, it is important to note that the terms "disinformation and misinformation" are sometimes used interchangeably. Although they are closely related, they are conceptually different in constructs. According to Tucker et al. (2018), disinformation subsumes all "knowingly" false or incorrect information such as fake news and rumors. On the other hand, misinformation refers to the sharing and propagation of false news and information "either knowing it to be false or unknowingly". Drawing on the

definition proposed by Allcott and Gentzkow (2017), fake news includes "news articles that are intentionally and verifiably false and could mislead readers."

As stated earlier, social media platforms are the main source for the trafficking of fake and misleading information. According to Meel and Vishwakarma (2020), the rate of fabricated news, rumors, and unverified content on those sites has reached alarming rates. This phenomenon has triggered tremendous worries for both media scholars and government stakeholders to probe the far-reaching causes and effects of this hitherto global ethical 'epidemic'. Cardoso et al. (2016) mentions that in today's networked societies, "the people are the message, not the media." Therefore, following the eruption of mobile devices and information superhighways, a euphoric optimism prevailed amongst political analysts and academics of an imminent global democratization, including a free flow of access to information. However, Tucker et al. (2018) posits that "there is now widespread concern in many segments of society, including the media, scholars, the philanthropic community, civil society, and even politicians, indicating that social media may be undermining democracy". Just like most countries in the world, Morocco has been a fertile soil for the spread and propagation of fake stories and erroneous news which have had devastating repercussions at various levels, ranging from social, economic, political, and technological spheres.

Certainly, the current Moroccan sociopolitical scenery does create a favorable environment for the spread of fake news. The proliferation of innumerable social media websites makes it harder for the average person to sift valid and reliable information from erroneous and misleading media platforms. Furthermore, the large illiteracy rate in Morocco renders such large audiences more vulnerable to consuming unverified information in a fast way due to the absence of media literacy skills, such as using fact-checking sources. The Moroccan sociopolitical environment is also characterized by a mosaic of political parties and ideological orientations that all strive to deploy SNS to leverage their political agendas and maneuver economic and societal changes. Such polarization is clearly manifested during political campaigns, family code amendments, and language planning strategy.

The dissemination of some pictures and rigged footages on social media that primarily aim to disrupt social and political serenity are reminiscent of old propagandistic tactics whose sole aim is to destabilize Moroccan institutions and spur public unrest and riots. One such infamous case was the spread of a fake video, few years ago, of a dog 'breastfeeding' a little baby in chilly and snowy weather in one of the regions of the Atlas Mountains. Countless 'gullible' Moroccan social media users had also widely shared pictures of presumably Moroccan police forces torturing protestors, illegal

immigrants taking deadly ferry boats, or fabricated dubbed footages ascribed to top Moroccan officials.

Several months after the outbreak of the COVID-19 pandemic, the proliferation of fake news had seen an unprecedented surge. During the lock down period mandated by the Moroccan government, Moroccan users on social media were shelled with relentless, incessant, and often conflicting narratives about various issues revolving around the Corona virus genesis and origin. Others promulgated messages about supposedly efficient healing treatments and magical recipes to avert contracting the virus. To curb offenders, the Moroccan government had initially drafted the controversial 22.20 law that criminalizes the propagation of false information with sentences up to five years of imprisonment. In parallel, the state-owned television channels had repeatedly called on users to exercise vigilance and caution to resist the manipulation of misleading messages. In addition, official accounts were regularly provided and experts/specialists were invited to dispel misconceptions and myths about health and education issues as well as national market provision and subsidies.

Back in 2018, the kingdom of Morocco had witnessed an unprecedented digital boycotting campaign that was launched in a bid to counter the hegemonic monopoly of three giant companies. Two of these firms specialized in the production of specific brands of dairies and mineral water, while the third one was a large fuel distributing business. Although the extent to which this campaign was efficient still remains largely controversial, most analysts agree that the financial damage incurred on the boycotted companies was clearly felt in the sharp drop in their stock market index values. One more significant observation reveals that the campaign demonstrated in quite tangible terms the huge financial losses digital platforms could inflict on apparently very powerful corporations. It also demonstrated that huge portions of the population are heavy consumers of SNS and are readily prepared to believe and spread words from potentially unverified and anonymous sources.

In addition to consumer boycotts, SNS have also proven instrumental in mobilizing both popular and mainstream support for the tragic case of the late Moroccan five-year-old kid named Rayan who, in February 2022, fell into a deep and narrow well in one of the rural villages near Chefchaouen, a small town in the North of Morocco. To compete with local digital media outlets, giant Arab television networks, such as Al Jazeera and Al Arabiya, had forsaken their usual coverage of global events and almost entirely focused on the non-stop live coverage of the Ryan rescue efforts. This rivalry was so intense and incomprehensible that it eventually brought about incessant and hysterical 'breaking news' that far outweighed the scale of the news worthiness. As many would argue, in many parts of Morocco and the Arab world, children are subjected to daily subservience, labor, sexual exploitation,

and trafficking. Similar stories of children trapped or killed in wells are almost a commonplace in the Moroccan press. The Ryan 'effect' has generated a deluge of misinformation that was indiscriminately consumed by a large number of avid SNS users.

Within this framework, and given the great concerns voiced by researchers, educational and social psychologists, parents, and policy makers over the potential hazardous effects of digital platforms on the younger population, it seems legitimate to insightfully examine such worries from an empirical perspective. Graham and Metaxas (2003) state that "the biggest challenge for students in this age of information overload is to evaluate the vast wealth of information available." Kumar and Shah (2018) have also demonstrated that "both trained and casual readers get fooled into believing false information when it is well written, long, and well-referenced." Scholarship on the personal gratifications and social dynamics of social media platforms is abundant. Nonetheless, unraveling the manifold impacts and implications of misinformation and disinformation on students remains woefully under-researched.

In one of the most recent published works in the area, Orhan (2023) set out to explore the extent to which critical thinking skills and media literacy can empower university students to successfully cope with misinformation and fake news on social networks. The author had harnessed the SOSU Critical Thinking Dispositions Scale (CTDS) to gather data from a sample of 157 Turkish University students. In this quantitative study, Orhan adopted Koc and Barut's New Media Literacy Scale (NMLS) to gauge the respondents' digital media literacy capacities. According to the researcher, this 35 items scale involves "functional consumption (7 items), critical consumption (11 items), functional presumption (7 items), and critical presumption (10 items)". In this study, the author found that Turkish university students hold high order and digital media management thinking skills. He also outlined the moderate relationship that exists between possessing the above skills and the ability to readily identify and cope with fake news on various social networking outlets.

In a similar study, Ponera and Mubuyaeta (2023) investigated the readiness of students in higher educational institutions in Tanzania to critically analyze misinformation on social media and avoid the propagation of false information. They also sought to examine the efficiency of academic institutions' media policy in fostering students' digital media skills. The researchers espoused a mixed method to approach the issue. A questionnaire was devised to gather the participants responses and an interview was set up to acquire informative input from eight department heads affiliated to Tanzanian universities. The sample consisted of 633 university students from four postgraduate academic institutions. The results revealed that, while most students hardly attend digital media training sessions, Tanzanian universities

"provide their students with information literacy training to equip them with the skills to search, retrieve, evaluate, and ethically use the obtained information". However, most students expressed their unawareness and unfamiliarity with the official social media policy and institutional training programs.

Another study was conducted by Harjule et al. (2023). In this empirical endeavor, the researchers sought to ascertain the motives behind the sharing of false and unverified information online during the period of COVID-19 lockdown. They also aimed to demystify the motivations that drive Indian students in higher education to share fake news and spread misinformation on social media websites. To gather data from participants, the authors used a google-form survey that was distributed to college students. The researchers also employed the snowball technique to maximize the participant and response rates because of its large-scale dimension. Nevertheless, only 360 students took part in the survey, which is one major limitation of this study. The descriptive and inferential statistics were deployed to statistically analyze the data. Overall, the results indicated that "the main motivations of sharing misinformation are found to be related to self-expression, information characteristics, and socializing." They also concluded that demographic variables, especially gender and the educational level, significantly plays an important role in changing students' perceptions and modulating digital media practice.

Based on the review of most relevant, pertinent, and up-to-date studies, the contribution of this study, which is undertaken with reference to Moroccan university students, is therefore significant since it attempts to shed light on a poorly investigated phenomenon (Mrah & Tazioui, 2018).

Research Questions
An extensive review of the existing literature on the broad theme of the usage of social media outlets by youth in general, and students in particular, has made it possible to revisit and further refine the initial assumptions and conjectures about the research problem. Thus, six research questions that are essentially intended to direct this research endeavor have been put forward. The questions are as follows:

1. What are the Moroccan university students' overall media usage patterns and their main motives for using social media outlets?
2. What are the students' perceptions about the generation, causes, mechanisms, and propagation of misinformation on SNS?
3. What are the salient SNS that respondents feed on the most to get news and information about current issues and topics of interest?

4. What are the most dominant techniques that Moroccan university students generally employ to verify the veracity of news and information on SNS?
5. How do respondents' rate their perceived digital media self-efficacy in relation to SNS consumption and usage?
6. How do students perceive the role of higher educational institutions in incorporating and cultivating digital literacy skills in their curricula and syllabi?

Sample and Instrument

The sample of this study consisted of students enrolled in Moroccan higher educational institutions. Although not largely representative of the vast population, 102 randomly selected students voluntarily agreed to take part in the survey. In terms of gender, 61 students (59.80 %) were males while 41 students (40.19 %) were females. The students were assured that their responses were exclusively meant for academic research and their input would remain confidential in line with the university's ethical standards and code of conduct.

The questionnaire was piloted by some colleagues, and this made it possible to identify a few flaws that were later addressed. The snowball technique was also adopted to raise the response rate which had reached 82%. This survey was administered to the respondents to gather data and gauge their attitudes about the research problem and questions. As far as age is concerned, 52.9% of students were between 21 and 25 years, 35.3% were 17 to 20 years, and 11.8% of respondents were over 25 years. The educational level was another significant variable to this study. Therefore, students were sorted out into two categories. The first cohort (48%) were undergraduate students, while the second category (52%) were postgraduate students.

The questionnaire was made up of three sections. The opening section comprised of three sociodemographic questions. The second section elicited the respondents' input about their media usage and viewing patterns. The last section which contained ten multiple choice questions was the primary part in which the students were requested to reveal their perceptions about social media content and misinformation issues. To collect and analyze data statistically, the survey was designed using the Google Forms web-based software. The data was subjected to a rigorous descriptive analysis. Given that the research primarily seeks to explore relationships and investigate students' perceptions, inferential statistics was not employed in the analysis. Admittedly, using inferential statistics would have surely enhanced the explanatory power of the results of this study.

Results and Discussion

In the second section of the survey, respondents were first asked two questions to rate their overall frequency of watching Moroccan public television outlets, such as Al Oula, 2M and Medi I as well as listening to radio stations aired inside Morocco, such as Idaa Al Wataniyya, Aswat, Med radio, Hit radio, and Mars. Such questions were significantly important as they might provide indicative insights on today's Moroccan youth's media consumption propensity and the major sources of information they feed on. This is also likely to shed light on one of the possible causes behind the propagation of fake news and unverified messages since public television and radio stations are generally recognized for their credibility, truthfulness, and accountability. Since the liberation of the media market in Morocco, the high authority for Audio-visual Communication (HACA), which is a legal and official body, was created and entrusted with monitoring and regulating the national media. With regard to the first item, almost two thirds of respondents (64.7%) admitted that they occasionally watch those television channels compared to a low rate of 19% who watch frequently or very frequently. Almost identical findings transpired from the students' usage of radio stations as over two thirds (69%) mentioned that they occasionally listen to the above stations. Conversely, a tiny proportion (16.5%) revealed that they listen frequently or very frequently.

The next item was introduced to estimate the amount of time spent watching social media in an average weekday. Results showed that almost half of the sample (47.1%) consumed an amount of three to four hours per day. This is followed by nearly one third (29.4%) who reported their usage of five to six hours. A smaller portion of students (17.6%) admitted that they roughly spend one to two hours, while a tiny proportion (5.7%) reported a lower consumption of social media sites. Surprisingly, only 0.2% claimed that they spend less than one hour or no time at all on those sites. When asked about their favorite social networking sites, Instagram topped the ratings with 35.3%, WhatsApp with 29.4%, Facebook with 23.5%, and YouTube with 11.8%. The students were further requested to rate their daily usage of the social media networking site they had opted for. Nearly half of the sample (43.8%) reported the daily use of three to four hours. 18.8% of university students acknowledged that they consumed five to six hours. The same figure (18.8%) was registered with respondents whose daily diet varied between one and two hours, while only 6.1% stated that they daily use SNS for more than six hours.

The last item in the second section was designed to ascertain the participants' main motives for using SNS. About half of the students (44.4%) revealed that they used SNS for entertainment and relaxation such as watching movies and playing games, while over one third (33.3%) used SNS to get the latest news about current issues and affairs. Only 21.1% use SNS for

befriending and socializing compared with the rather unexpected low rate of 1.2% of students who utilize SNS for learning and conducting academic research.

As mentioned earlier, the aim of the third and central section of the survey was to probe the respondents' perceptions about social media content and related misinformation issues. The first item asked students to indicate the preferred media outlets they seek to get informed about the various topics and issues. The overwhelming majority (83.3%) reported that social media platforms represent their main source for obtaining information. Television outlets occupy a secondary position with a low rate of 13.1%. While print newspapers were cited as marginal sources (3.6%), radio stations failed to receive any response.

The second question required the participants to give their own assessment about the most credible and trustworthy source for obtaining news and information about current issues. As expected, results showed that both television channels and SNS enjoy the leading position as the most reliable and veracious forms of input with an identical percentage of 35.3%. On the other hand, print newspapers came second with a rate of 11.8%. Surprisingly, a relatively important portion of the sample (17.6%) think that all the suggested media outlets are, a priori at least, lacking in credibility and are not worthy of their trust. To narrow down the scope of the inquiry, the next item probed the respondents' views on the usage of social media platforms. More specifically, they were asked to specify, out of six options, the social media platform they use the most to get news and information. Graph 1 displays the details.
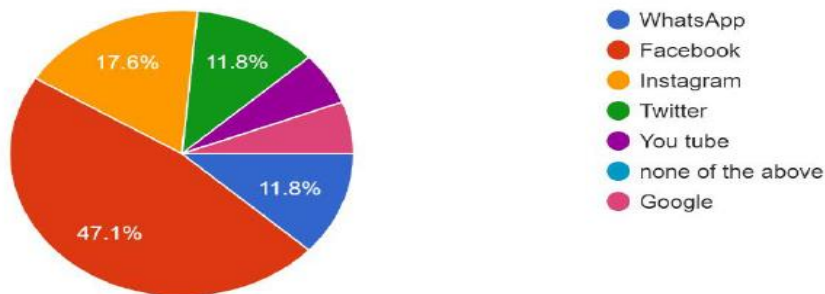
Graph 1. A Typology of Social Media Platforms Used by Respondents

As the figure above demonstrates, almost half of the respondents (47.1%) rely heavily on Facebook to satiate their curiosity about current news and latest events. Instagram ranked in the second position with 17.6%. This was followed by Twitter and WhatsApp that concurrently reaped 11.8% of all attitudes. Surprisingly, YouTube and Google only earned a relatively meager rate. These results vividly display that when it comes to news and information,

the students have different convictions about the choice of media outlets they deem appropriate and appealing to their tastes. Although accessing the Internet via google search engine provides students with ample and unlimited websites that offer rich sources of news and information, most students probably find the Internet a more tedious, cumbersome, and time-consuming means to get instant, viral, and ready-made pieces of news.

The next question in the survey required the participants to cite the most credible and trustworthy source of all the SNS. The figures showed that one third (33.3%) of the students expressed their belief that none of those suggested sites enjoys the merit of reliability and credibility. Twitter and Facebook ranked second with an equal rate of 22.2% each. This was followed by Instagram (16.7%) and YouTube as the last medium with a small percentage of 5.6%. In terms of veracity and truthfulness, many respondents are convinced that despite their frequent usage of SNS, they are well-informed about their lack of credibility. Most plausibly, such students do not fall into the fallacious trap of confounding popularity and convenience with credibility and truthfulness. This finding is corroborated by Steinfeld (2023) whose study demonstrated that tech-savvy people are more effective in identifying misleading information. However, many others are possibly swayed by the appealing design and user-friendly features of social networks such as Twitter, Facebook, and Instagram. Interestingly, WhatsApp was unanimously barred from any rating (00.00%) as it most obviously fell into disrepute for having infamously propagating dozens of fake and misleading news during the COVID-19 health lockdown in Morocco.

Another item in the survey invited the respondents to express their views vis-à-vis the attitude that social media platforms are rife with false information, rumors, and fake news. Subsequently, almost two thirds (64.7%) of the sample entirely and unequivocally agree with the above statement. 17.6% of the students think that this is true to a great extent compared with a lower segment (11.8%) that opines that this statement is valid to some extent. Other respondents (5.9%), however, displayed their strong disagreement to the assertion. In terms of gender, 59% of females uphold the statement compared to 49% of males. This finding seems to be quite consonant with previous research studies (Harjule et al., 2023).

However, it should be noted that these findings run counter to the common-sense stereotype, which denotes that the preponderant majority of today's youth, irrespective of their educational status, falls as an easy prey to manipulative media content, thus hinging on the unproven assumption that they woefully lack basic critical thinking skills. Nonetheless, the small portion of respondents who ardently contend that SNS do not disseminate misinformation should send alarming signals to all concerned parties. Many

analysts might primarily ascribe this attitude to other parameters and sociocultural variables, such as prior personal and socialization experiences, peer-learning culture, younger age, and low intellectual growth. Furthermore, a significant inquiry was carried out to ascertain the students' perceptions of the main motives behind the promulgation of fake news on social media websites. Graph 2 illustrates the results.
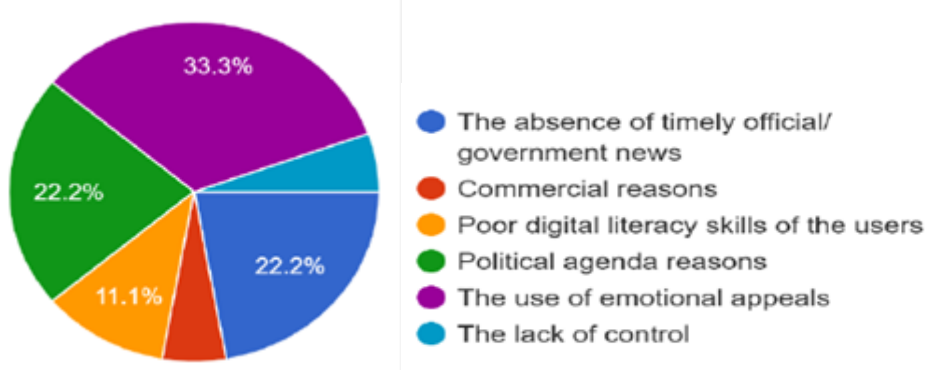
Graph 2. Main Reasons Behind the Propagation of Fake News on Social Media Sites

One third of the participants (33.3%) ascribe the rise of the phenomenon of disinformation and misinformation on SNS to the use of emotional appeals by content generators. The absence of timely and official government news, in conjunction with covert political agendas, had the rate of 22.2% each. Only 11.1% of the respondents believe that the issue under question is due to the poor digital literacy of the users. Relatively, fewer students assert that the lack of censorship and a supervisory body that controls the national media scenery is the main reason behind the dissemination of fake news. Similarly, a few others contend that such deceitful acts are largely driven by commercial factors. In other words, this small fragment of the sample argues that the sole objective of those who create misleading news or merely share it on a massive scale is to boost their viewing ratings. This attitude is closely related to the emotional appeal argument proposed above. To design alluring and highly sensational material, the creators make use of subliminal and sociopsychological hooks, such as reporting celebrity scandals, corruption of officials, and criminal assaults. These stories will most likely go viral given their extremely irresistible seductive power to the younger consumers in particular. Consequently, such category of news will definitely reap huge financial profits as many advertising agencies and companies will fiercely compete to sell their products and services. In this vein, Thurlow (2013) asserts that social media is deeply engrained in neoliberal ideologies. He argues that these "synthetic media" "are based on highly stylized, commoditized notions of language and communication. Therefore, instead of generating real interaction or dialogue, it fosters a kind of "pseudo-sociality".

Nevertheless, as the figures above show, many students are convinced that the government bears a huge responsibility in the area by failing to provide accurate and updated news to fill the information gap. Interestingly, a fairly important part of students is conversant with the power dynamics involved in the media distribution industry in the kingdom of Morocco and how influential tycoons affiliated to certain political parties leverage their 'hegemonic' weight to undermine the political standings of their rivals by launching well-engineered smearing campaigns against them and similarly muzzling antagonistic voices through trolls, social bots, and astroturfing mechanisms.

The next item in the questionnaire allowed the researcher to get more insight into the respondents' evaluative procedures of social media messages and images. More than one third of students (38.9%) stated that they always carefully evaluate the available information for truthfulness and reliability compared with 22.2% who often do not do same. However, smaller portions of the sample admitted that they sometimes or only rarely verify the veracity of the SNS content they receive with a rate of 16.7% each. Unexpectedly, and despite their small number, some students (5.5%) confessed that they never employ any verification strategies when they access SNS. The latter finding might seem in stark contradiction with the respondents' previously stated attitudes. However, such answers that hinder any hasty over generalizations legitimate the incorporation of various cross-questioning techniques and the need to apply mixed methods to account for such deficiencies. This also reveals the complexity of eliciting hard and fast data that is reliable by administering survey items that might pose potential threats to the respondents' 'face' or self-esteem.

To thoroughly probe the above issue, the students were requested to suggest the techniques they most frequently apply to verify the truthfulness of the information accessed on SNS.

Table 1. Main Techniques Used to Verify the Veracity of Information on SNS

Techniques Applied to Verify the Truthfulness of the Accessed Information on SNS	Percentage
-I always do a search about the website (Design/editorial standards/email contact etc.)	11.8%
-I always critically consider the date the information was posted.	64.7%
-I always use fact-checking websites to verify the truthfulness of the message.	41.2%
- I always do a thorough research about the author's expertise and background.	11.8
-I always compare the information with other available electronic sources.	64.7
-I always take time to critically analyse the news headline (Tone/grammar/punctuation/spelling etc.).	17.6

According to Table 1, about two thirds of the surveyed students (64.7%) revealed that they always do a search about the website by inquiring about details, such as its design, editorial standards, and email contact. With an identical result (64.7%), the respondents equally reported that they always compare the information they obtain with other available electronic sources. An important portion of the sample (41.2%) stated that they always use fact-checking websites to verify the truthfulness of the message. To a lesser degree, a smaller portion (17.6%) acknowledged that they always take time to critically analyse the news headline by examining its tone, grammar, punctuation, spelling, etc. However, two significant techniques were unexpectedly underused by most university students. Only 11.8% confirmed that they always critically consider the date the information was posted and always carry out a thorough research about the author's expertise and background.

Accordingly, most Moroccan university students are acquainted with rudimentary critical thinking skills, such as seeking information about the website's formal features and crosschecking different sources to verify for truthfulness. In contrast, many others are badly unequipped with those skills as they failed to report any of the suggested techniques. Similarly, other important subskills and techniques, as explained above, still need to be introduced and honed by students given their fundamental character for tertiary level education. Another question was addressed to the respondents to assess the extent to which they think they are digitally well-equipped to use social media platforms effectively. Graph 3 illustrates the results.
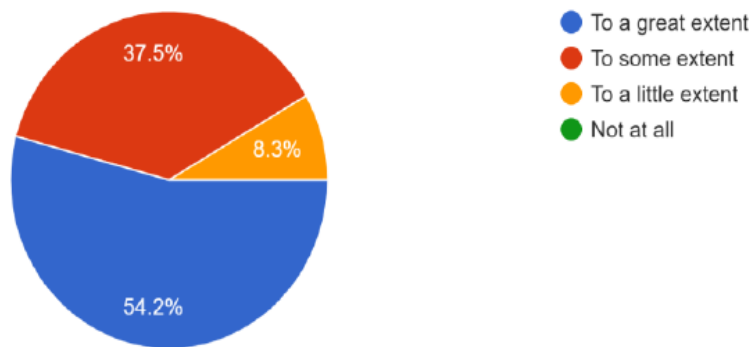
**Graph 3.** Self-Perception of Digital Media Efficacy

As seen from the graph above, more than half of the respondents (54.2%) perceive themselves as digitally well-trained to cope with the numerous risks and challenges inherent in SNS compared to more than one third (37.5%) who claim that they are equally well-equipped to some extent. A rather limited number of participants (8.3%) admitted that they do not

possess the requisite numeric skills and competencies that are liable to allow them to efficiently manage the potential pitfalls and hazards associated with digital platforms. Surprisingly, no student reported that they lack basic digital proficiency tools. Understandably, this might be attributed to an underlying and often hardly perceptible desire to sound more 'mature' and more alert intellectually. The presence of such responses would entail that a university student is 'digitally illiterate', which is very insulting to their intelligence and severely lowers their self-esteem. Above all, the findings to this question vividly highlight the paradox between the respondents' largely positive perceptions of themselves and their de facto behaviours, including the preponderant practices on social media platforms.

The last item in the survey, which is thematically linked to the previous one, required the students to express their opinion about the role of higher educational institutions in promoting the students' soft and life skills to face the ever-growing challenges posed by the mushrooming of SNS in today's digital scenery. The graph below summarizes the details.
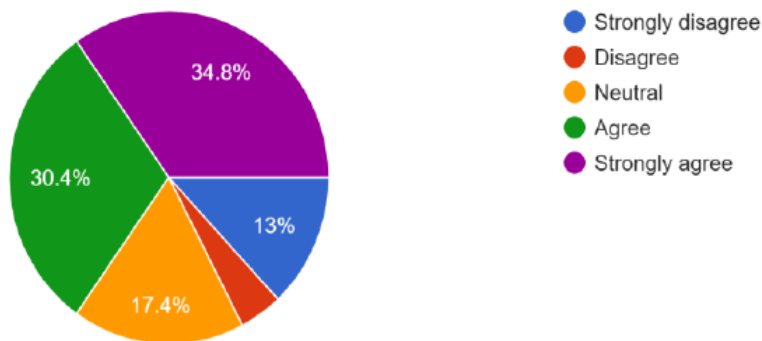
Graph 4. Attitudes Towards Incorporating Digital Literacy Skills in University Curricula and Syllabi

As expected, a sizable figure of about two thirds of the sample expressed their approval with the statement, with 34.8% showing strong disagreement and 30.4% expressing mere agreement. However, a small group of participants (13%) and an even smaller portion (4.3%) believe that such knowledge and skills should be imparted beyond the confines of tertiary academic institutions. Although some university students (17.4%) are undecided about such a consequential issue, those who agreed think that the proliferation of misinformation and fake news are on the rise and are fabricated by highly specialized technicians to manipulate even the most apparently well-educated. Therefore, such skills need to be regularly updated and initiated to students regardless of their academic levels. Unfortunately, very few departments in Moroccan universities incorporate digital media literacy and critical thinking courses as integral components in their curricula.

As stated earlier, to account for disagreement rates, many students may hold the conviction that a higher education institution is the venue of learning knowledge, hard sciences, and doing research experiments and not the home for acquiring soft skills such as digital literacy skills, communication, leadership, time management, and autonomy. Accordingly, such skills need to have been picked up in early school life, long before they join higher education.

Summary of Results, Recommendations, and Conclusion

This paper has investigated how Moroccan university students approach the various SNS and examined their self-perceived capacities to critically analyze and evaluate digital content in general and online news and information more specifically. Drawing on analytical empirical evidence, this research has demonstrated that television, radio, and print newspaper sources are still viewed, by young Moroccan university students, as the most credible sources of news and information. Surprisingly, using SNS to conduct academic research is not amongst the participants' top priorities. However, entertainment tends to be the leading motive. Paradoxically, most students seek these sites to get their information diet. However, a large proportion believes in the veracity of traditional media outlets, mainly TV and print newspapers. This is equally substantiated by the finding which reveals that one third of participants are fully aware that all social media platforms lack credibility and are fraught with rumors and fake news. Additionally, most respondents affirm that they critically evaluate social media content and largely deploy various efficient verification measures and techniques. The study also found that the majority of respondents' highly rate their digital media perceived self-efficacy. It is also significant to note that almost two thirds of the participants postulate that higher educational institutions should incorporate literacy skills in their curricula and syllabi.

In light of the results obtained from this study, several key recommendations can be put forth to empower Moroccan students in higher educational institutions to cope with misinformation challenges and nurture their digital critical thinking skills. Wei et al. (2023) reported that digital media literacy skills "are stronger among those with low social media literacy skills." In this respect, the incorporation of Higher Order Critical Thinking competencies, with special emphasis on digital literacy skills, in all Moroccan tertiary education curricula is a national priority. The fact that most students 'feed' on electronic media outlets poses pressing challenges to traditional print sources. Therefore, it is projected in the foreseeable future that print media will find it hard to survive the torrents of instant messages and images generated by infinite electronic sources, which are readily available and easily accessible. An official and structural upgrading of the journalism industry in

the country is imperative to fill the 'information gap' and boost healthy democratic practices. Similarly, providing sufficient financial resources to both credible and well-established print and digital news producers will surely yield more accountable quality news agencies and dissuade them from propagating sensational and unverified news stories.

From a legal perspective, the government issued a binding legislative framework in 2016 which sets regulatory guidelines and lays the ground for standard journalistic practices (Bulletin Officiel, 2016). Despite this bill, huge efforts need to be invested by all stakeholders to counter the generation and trafficking of fake news and unfounded allegations on many SNS that are often driven by hidden political agendas that undermine the political stability of the country. Seen from a technological standpoint, there seems to be a common consensus amongst analysts and experts in the area where no technical panacea exists to contain the scourge of disinformation. Thus, more future research is required to debug the intricacies of this alarming societal behavior. This is largely supported by Oliver (2018) who stipulates that "the problem of disinformation on social media platforms remain very much an open one - a fundamental concern of contemporary society whose answer may lie in data science."

One of the main limitations of this study lies in its unrepresentative sample given the large size of the population under investigation. Secondly, adopting a mixed-methods research approach that combines both quantitative and qualitative data collections procedures would have certainly yielded more reliable findings. Similarly, the translation of the questionnaire into other languages, mainly French and Arabic, to involve various categories of the targeted population would probably have maximized the response rates.

Overall, the issue of fake news and misinformation online is a multidisciplinary phenomenon whose diverse discourse mechanisms can unimaginably forge public opinion and damage public trust in institutions. Its subtle influences also transcend beyond educational and intellectual boundaries and affects nearly all segments of society. Hence, this ought to be taken more earnestly. In the wake of the 2016 U.S presidential elections' scandal, Mark Zuckerberg, the CEO of Facebook, warns that "the question of how to counteract the damage done by "fake news" has become a pressing issue for technology companies and governments across the globe." (Meserole, 2018). Miriam and Alani (2018) propose an integral 'Four Es' model that adeptly combines four essential components which are vital for sustaining modern democracy and nourishing civic education, namely: empowerment, engagement, education, and encouragement. Based on their opinion, empowerment entails "raising individual and collective awareness of current misinformation content and sources." The aim of this engagement is to foster "networking and cross-communication between users". The purpose

of education is to inform "users of advanced misinformation analysis results and predictions." In the fourth principle, the authors argue that future technology should encourage "all users to play a role in detecting, validating, and combating misinformation".

Conflict of Interest: The authors reported no conflict of interest.

Data Availability: All of the data are included in the content of the paper.

Funding Statement: The authors did not obtain any funding for this research.

Declaration for Human Participants: This study did not involve animals but did involve participants who had volunteered to take part in the study as shown in the questionnaire included in the appendix.

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Appendix
SURVEY

The primary purpose of this survey is to explore how Moroccan university students approach the various social networking sites and to assess their capacities to critically analyze and evaluate digital content in general and online news and information more specifically. The results of this study will be exclusively utilized for academic purposes. You are kindly invited to take few minutes to participate in this endeavor by responding to the questions below. Thank you so much in advance for your collaboration.

SECTION 1: DEMOGRAPHICS
1- Gender:
☐　　　Male
☐　　　Female

2- Age:
1.　　　17 to 20
2.　　　21 to 25
3.　　　Over 25

3- Current Academic Level:
☐　　　Undergraduate
☐　　　Postgraduate
☐　　　Other (Please specify): …………………………….

SECTION 2: MEDIA USAGE AND VIEWING PATTERNS
1- How often do you watch Moroccan public television outlets (Al Oula/2M /Medi I etc)?
Never　　　occasionally　　　fairly enough　　　frequently　　　very frequently

2- How often do you listen to Moroccan radio stations?
Never　　　occasionally　　　fairly enough　　　frequently　　　very frequently

3- How much time do you spend on social media *per day?*
No time at all　less than 1 hour　1-2 hours　　　3-4 hours　　　5-6 hours
more than 6 hours

4- Please, rate your daily usage of each of the following social networking sites along the scale provided:

WhatsApp:
No time at all　less than 1 hour　1-2 hours　　　3-4 hours　　　5-6 hours　　　more than 6 hours

Facebook:
No time at all　less than 1 hour　1-2 hours　　　3-4 hours　　　5-6 hours　　　more than 6 hours

Twitter:
No time at all   less than 1 hour   1-2 hours   3-4 hours   5-6 hours   more than 6
hours

Instagram:
No time at all   less than 1 hour   1-2 hours   3-4 hours   5-6 hours   more than 6
hours

Snapchat:
No time at all   less than 1 hour   1-2 hours   3-4 hours   5-6 hours   more than 6
hours
YouTube:
No time at all   less than 1 hour   1-2 hours   3-4 hours   5-6 hours   more than 6
hours

5- What are your main motives for using social networking sites?
-          Learning and doing academic research
-          Getting the latest news about current issues and affairs
-          Befriending and socializing
-          Entertainment and relaxation (watching movies/playing games etc.)
-          Other (please specify): ………..

SECTION 3: PERCEPTIONS ABOUT SOCIAL MEDIA CONTENT AND MISINFORMATION ISSUES

1- Which outlets do you usually seek to get informed about the various topics and issues?
TV outlets   Radio stations   print newspapers   social media platforms   other (please specify):
……

2- In your opinion, which is the most credible and trustworthy source for getting news and information about the various issues?
TV outlets   Radio stations   print newspapers   social media platforms   none of the above

3- If you use social media platforms, which one do you use the most to get news and information?
WhatsApp   Facebook   Instagram   Twitter   You tube   none of the above   Other (specify)….

4- Of all the following, which is, in your opinion, the most credible and trustworthy source for getting news and messages?
WhatsApp   Facebook   Instagram   Twitter   You tube   none of the above   Other (specify)….

5- Do you share the attitude that social media platforms are full of false information, rumors, and fake news?
Absolutely   To a great extent   To some extent   Not at all

6- Which is, in your opinion, the most logical reason for the fast spread of fake news on social media sites?

-The absence of timely official/government news
-Commercial reasons
-The poor digital literacy skills of the users
-Political agenda reasons
-The use of emotional appeals
-Other (Please specify): …….

7- While accessing social networking sites, how often do you carefully evaluate the available information for truthfulness and reliability?
Never   rarely   sometimes   often   always

8- Which of the following techniques do you apply to verify and check the truthfulness of the accessed information on social media sites? (Tick all that apply)
-I always do a search about the website (Design/editorial standards/email contact etc.)
-I always critically consider the date the information was posted.
-I always use fact-checking websites to verify the truthfulness of the message.
-I always do a thorough research about the author's expertise and background.
-I always compare the information with other available electronic sources.
-I always take time to critically analyse the news headline (Tone/grammar/punctuation/spelling etc.).

9- Overall, to what extent do you think you are digitally well-equipped to use social media platforms effectively?
Not at all   To a little extent   To some extent   To a great extent

10- 'Moroccan higher education curricula and syllabi should teach students the requisite skills to cope with the challenges of misinformation and the spread of fake news'. Do you agree?
I strongly agree   I agree   neutral   I disagree   I strongly disagree