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Efficacy of Media Literacy Education in Fostering Digital Citizenship Skills among Early Adolescents

Beenish Zaheer [1] and Fouzia Naz[2]

ABSTRACT

The prevalence of digital media in adolescents' lives is rising at an alarming rate. It has become almost impossible to control the bulk of diverse information reaching immature minds through different digital media platforms every single day. The most pressing challenge of this digital era for parents and academic institutions is to strike a balance between exposure to the digital world and early adolescents' capability to mitigate its adverse effects. This paper emphasizes integrating media literacy into school curricula to help adolescents to navigate effectively through the complex digital landscape where the role of gatekeepers is non-existent. The study assesses how structured and age-appropriate media literacy can actually correspond to improved performance on the S.A.F.E. scale of digital citizenship. The researcher employed a pretest-post-test experimental design for a sample of 30 early adolescents aged between 11 and 13 years selected from a private school in Karachi using the self-selection sampling technique. The post-test responses of the participants confirmed that media literacy intervention notably helps in exercising digital citizenship with full potential.

***Keywords*:** Media Literacy, Adolescents, Digital Citizenship, Educational Settings, Digital Media

INTRODUCTION

Media has always been one of the decisive factors in guiding the political choices, social behaviours, and civic exposition of citizens. However, the evolving landscape of digital media has left no stone unturned in shifting a sizeable proportion of citizenship online. Today's young users have been roaming on digital platforms, confused, desperate and overwhelmed with the complete absence of a guiding intervention (Hobbs, 2017). The participatory nature of online platforms demands more active and vigilant consumers who are well-equipped with tools to scan the information perpetuated on digital media. The bombardment of diverse forms of information on Facebook, Twitter, Instagram, YouTube, websites, and WhatsApp groups is just detrimental to the budding cognitions of adolescents and the consequent construction of social realities in their naive minds (Livingstone, 2014). In this digital age, when a child takes more inspiration from his online experiences than the physical world around him, the tenets of citizenship are no longer confined to traditional practices (Mihailidis & Thevenin, 2013). On the contrary, the whole concept of citizenship has been transformed, and even conventional citizenship is guided and shaped by digital citizenship.

With the enormous transformations in all domains of media, the concept of media literacy has also evolved substantially. As Livingstone (2004) stated the simplest definition of media literacy as "the ability to access, analyse, evaluate and create messages across a variety of contexts" (p.18). This definition implies that media literacy actually develops a cognitive nudge to decode the media messages critically and actively. Similarly, the term digital citizenship is not new to the educational paradigm, but most of the research on this subject has been devoted to ascertaining civic engagement and democratic participation of youngsters. Though they are integral constituents of digital citizenship, in a time when young individuals are spending more time in the virtual world, some of these discussions also revolve around digital rights and responsibilities, including freedom of expression, respecting intellectual property, digital etiquette and wellbeing, and adhering to lawful activities in the virtual spaces (Sarwatay et al. 2021).

[1] MPhil Scholar, Department of Mass Communication, University of Karachi, Karachi, Sindh, Pakistan.
[2] Professor, Department of Mass Communication, University of Karachi, Karachi, Sindh, Pakistan. Email: fouzianaz@uok.edu.pk
Corresponding Author: Beenish Zaheer, Email: beenish.zaheer11@gmail.com

The current understanding of digital citizenship applies to individual understanding of a task mediated by digital media in general and mastering in particular the use and dexterity in navigating the affordances of the digital world (Yue et al., 2019). Digital citizenship is not entirely another domain for the digital natives, but it is an extension of conventional citizenship and a medium through which the traditional endeavours of citizenship are actually exercised and executed (Yue et al.,2019).

PROBLEM STATEMENT

Early adolescents are the most vulnerable group as they just enter the digital world with no prior knowledge about digital dilemmas and media operations. The significance of media as a source of experiencing the physical world continues to rise for them (Sarwatay et al.2021). It's more of an information-saturated digital ecosystem which surrounds the immature and vulnerable minds of youth (Vlaanderen et al., 2020). As Joshua Meyrowitz gave the best description of this early window to the world opened by digital media as "children cross the globe even before they have permission to cross the street" (1985, p.238). According to online facts and figures, 16 percent of the total population in Pakistan is aged between 11 and 17 years (DataReportal, 2023). Though there is no data available about the exact number of age-wise internet user in Pakistan, researchers reveal that parents consider 10-12 as the ideal age for a child to have their own smartphone (Times of India, 2023).

There is no significant work has been done in Pakistan targeting the integration of media literacy in school education. There are teachings for effective citizenship in curricula, including social relationships, rights and responsibilities, but the digital spaces where the perceptions about social realities are formed and political schemas are constructed through informal communication, have been completely neglected. The academic institutions in the private sector of Pakistan are busy in advocating for integrating 21st-century skills in their curriculum, but there is no consideration for media literacy. It is extremely important to come up with age-appropriate media literacy interventions in educational settings to empower young minds for navigating the digital landscape without being manipulated by it.

OBJECTIVES

The objectives of this study are as follows:

1. To jot down the media literacy competencies appropriate for school-age adolescents.
2. To investigate how media literacy influences the interpretation of digital media messages and to render more control over the skill of utilising digital media for their empowerment.
3. To identify the impact of media literacy on mitigating the detrimental effects of digital media.
4. To emphasise the need to integrate well-planned and structured media literacy pedagogies in school curricula in Pakistan.

HYPOTHESIS

H_0: The integration of media literacy in educational settings is ineffective in fostering digital citizenship skills among early adolescents.
H_a: The integration of media literacy in educational settings will foster digital citizenship skills among early adolescents.

Conceptual Framework

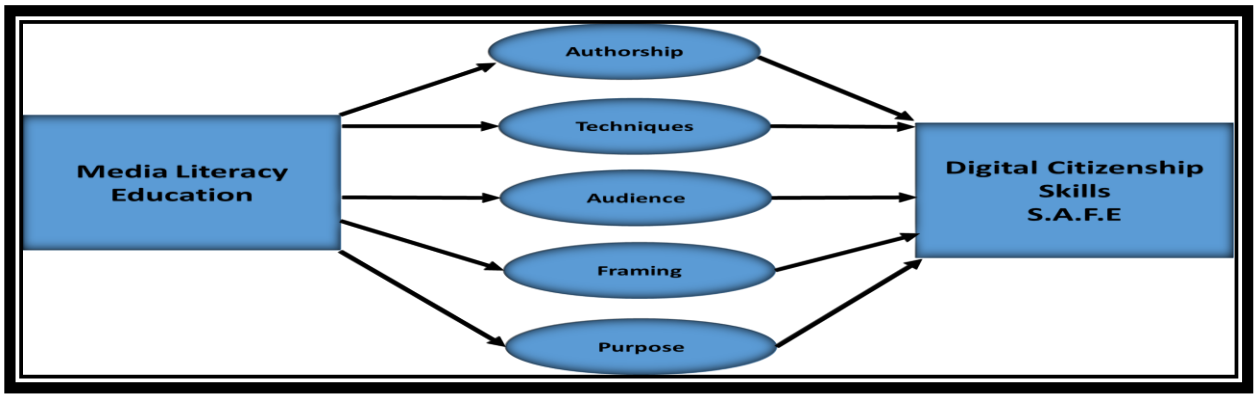


Figure 1: Conceptual framework showing effect of media literacy education on the understanding of media literacy elements and improving the overall digital citizenship skills.

SIGNIFICANCE OF THE STUDY

The current study assesses the relationship between integrating proper media literacy education in the school curriculum and its effect on different facets of digital citizenship. This study will greatly help in adopting a pragmatic approach towards the present challenge of raising informed, responsible and digital citizens because today's adolescents are completely immersed in the world of digital media. The study can be a roadmap for curriculum planners in Pakistan to design age-appropriate media literacy curricula enriched with sufficient age-appropriate hands-on activities. The study will greatly help parents to realise the threats that surrounded their kids while spanning their time in using online platforms.

LITERATURE REVIEW

Initially, a protectionist approach dominated the media literacy discourse aimed at protecting young people from the downbeat effects of media. But later on, the concept of media literacy shifted from straight condemnation to a dialogical approach interested in actually developing an understanding of how people access, adopt, utilise, and interpret media in their routine lives (Cappello, 2017).

Buckingham (2003) summarised the whole conventional and contemporary debate on the role of media literacy to help young individuals have a complete understanding of their own practices both as consumers and producers of media content in connection with the economic and social factors. The core competency of media literacy that is agreed upon by the majority of media literacy advocates is the ability to analyse critically the codes, agendas, and techniques employed in the messages conveyed by the media. Buckingham (2003) put it straight that analytical competence is all about understanding how the media functions as a commercial entity and adapts various methods to serve their financial interests. Media entities manipulate and represent realities by targeting a specific fraction of the population to serve their interests. Similarly, Masterman (1985) thoroughly explained the purpose of media education. The fundamental premise of media education is structured around the mediation role of media, that the media texts are a mere representation of the world around us. He aptly stated that "the media are symbolic sign systems that must be decoded. Without this principle, no media education is possible. From it, all else flows" (p.13).

The integration of media literacy in school curricula is already a hot debate in almost all first-world countries (Livingstone, 2014; Vlaanderen et al., 2020). But it's a novice area of research and discussion in academic circles of Pakistan to integrate media literacy into the school curriculum so that young digital citizens are not just equipped with the skill set to create and share content on digital platforms but also understand the ownership of data, privacy and its impact in a broader perspective (McGillivray et al., 2016). Media literacy education will not only help people adhere to responsible navigation through digital media but will also help them understand how their online lives are impacting their offline lives (Kim & Choi, 2018)).

Livingstone (2014) has made remarkable contributions toward setting the right direction for media literacy. She insists that personal empowerment in the whole debate on media literacy is very convincing, but putting the complete responsibility of regulating their own media use is unrealistic (Livingstone, 2014). Similarly, Sarwatay et

al. (2021) emphasise the need to develop built-in guards in young minds who are easily swayed by the glorified realm of digital platforms. They place primary responsibility on parents and educators to demonstrate to Gen Z that these are merely tools you use in life, after getting the proper training on how to use them efficiently to experience the best of digital citizenship. In the eve of media intrusion into every aspect of human life, digital citizenship entails how the decisions of young people are guided by the way they identify, filter and utilize online information in public discourses on cultural, social and political conflicts, how the differentiation in social roles concerning gender is marked and how they encourage novel forms of peer network membership to foster alternative publics (Yen et al., 2019, p.101).

The standards of proper online conduct define digital citizenship, and educating young people about digital citizenship is considered an ultimate way to prepare them for responsible navigation through the digital landscape (McGillivray et al., 2016). Various models and scales have been proposed to contextualise and measure the constituents of digital citizenship, with Ribble being first in the row (Ribble, 2015). But all the models had their own shortcomings in aligning with the needs of specific age groups of early adolescence. To come up with a simplified yet comprehensive digital citizenship scale appropriate to be used in educational settings for digital natives, Kim and Choi (2018) developed the S.A.F.E. model and scale. The model has summarised all the skills and competencies required for digital citizenship in four categories:

1) Self-identity in Digital Environment

Self-identity is the ability to develop values and beliefs that define one's identity, participation and engagement in the digital world. Self-identity clarifies one's own goals and how they align with their media usage. Self-identity also entails the risks and opportunities that are the major part of the digital world. Adolescents can't reach the zenith of effective digital life unless they are completely aware of how the parts of their identities shape their online lives. An informed digital citizen would master the art of creating a balance between media usage and their offline lives, as self-identity entails the psychological and physical strain of excessive media use. The core competencies in the domain of self-identity also include the complete realization of your rights and responsibilities as citizens while safeguarding your personal and sensitive information vigilantly (Kim & Choi,2018).

2) Activity in the Online World

Activity in online world consists of all the reasonable activities that are being carried out in digital spaces, including e-commerce, digital health, and political, cultural and economic engagement (Kim & Choi,2018). Another important competence in this domain is maintaining safe and healthy relationships online, which means that young users should be pragmatic and their online interactions should be guided by rational decision-making.

3) Fluency for the Digital environment

It refers to adeptness at using technologies to facilitate digital existence and learning to keep pace with emerging digital tools and technologies (Kim & Choi, 2018). The core competencies included are awareness of accessing various digital platforms in an informed manner, technical knowledge about using privacy settings of different social media sites, spotting the cookie usage of a website for tracking data and other data collection techniques used to track your online endeavours (Kim & Choi, 2018). The youth should also have knowledge about reliable and official sources of information, like a website with org. gov or edu domain in the end to be considered official.

4) Ethics for Digital Environment

Being ethical in digital spaces simply means "treat others as you want to be treated". There should be respect for others' opinions, particularly if they conflict with your own opinions. Kim and Choi (2018) emphasised preparing youth for combating and refraining from cyberbullying simultaneously. As with safety at home, school, or the mall, safety online is a function of the environment that young people can access. According to Livingstone (2014), children are subjected to online bullying, shame, violence, sex solicitation, and pornography. The concept of civic web by Gordon also focuses primarily on developing core competencies for future generations to integrate digital space and tools for civic information by developing critical media literacy education models (Gordon et al., 2013).

MEDIA LITERACY FRAMEWORK

Media Literacy has been the focus of extensive research over the past three decades and various frameworks have been proposed to be introduced in academic settings including four Dimensions of Media Literacy by Baacke (1996), Magedburger Model of Media Education by Jörissen and Marotzki (2009), 18 Principles by Masterman (1989), Empowerment Spiral by Thoman (1993) and Q/TIPS by Jolls and Wilson (2014). This study relies on a prominent media literacy framework known as Q/Tips, developed by two American media literacy experts, Jolls and Wilson (2014). The Q/Tips framework basically jots down the basic deconstructive questions every media-literate person

should ask whenever exposed to a manipulative or misinforming media message. The following questions serve as a checklist:

Thoman (1993) adapted the eight core principles of media literacy originating from Canada and simplified them into five core concepts of media literacy: authorship, techniques, audience, framing and purpose. Later on, Jolls and Wilson (2014) converted core elements of media literacy developed by Thomas into five brief questions that the audience can use as a deconstructive checklist for any media message.

Authorship: Who is the creator or source of the message, and why is the message being sent?
Techniques: What techniques are being employed to manipulate the content, draw my attention and serve the creator's interests?
Audience: Who is actually being targeted in the message? What lifestyles, values, beliefs and opinions are represented in the message?
Framing: How will the message have a different effect on different individuals? Is the message being placed in a particular field of meaning?
Purpose: What is excluded from this message, and what is included to achieve a purpose?

THEORETICAL FRAMEWORK

This research study mainly seeks inspiration from two theories that are inoculation theory and the framing theory. Inoculation theory is a social psychological/communication theory presented by William J. McGuire that compares the process by which a body becomes resistant to illness to the process by which an attitude or belief can be made resistant to influence or persuasion. The explanatory comparison employed by the idea of medical inoculation is applied to attitudes rather than diseases. The theory asserts that exposure to weak arguments can actually strengthen the belief system, hence one becomes capable of safeguarding their values and beliefs when they are attacked by digital media cues.

Another theory that aligns well with this research study is the framing theory. As Goffman asserted in his framing analysis, social cues are always there in the environment that push us to behave in a certain way by the pre-developed frames. We use the same frames to understand the media messages and then respond to social cues in accordance with the framing process we have. Putting media literacy in this scenario will obviously result in a realistic framing process. So, navigating this continuum is just possible through a long and consistent integration of media literacy in school settings.

MATERIALS AND METHODS

This study employed the simple quasi-experimental research design where an experimental group was directly exposed to the four types of digital media content corresponding to each domain of the S.A.F.E scale to assess how students reflect their understanding of media literacy to these examples before and after exposure to the media literacy framework. The sample for this study consisted of a total of 30 early adolescents aged between 11 and 13 years from a private school in Karachi, using the self-selection technique to ensure the comfort and interest of participants in the experiment. To avoid any gender-related bias, 15 girls and 15 boys were included in the sample. There was no control group in the experiment, as the basic objective was to measure the impact of the intervention on the participants receiving exposure, and the utmost effort was put into studying the realistic outcome of the intervention. The responses of participants were collected using an instrument based on the Media Literacy Framework, known as Q/Tips, developed by Jolls and Wilson (2014).

In the pretest phase of experiment, the participants were exposed to four different examples from different areas of digital media, including a screenshot of a website, a video by Azad Chaiwala, a homepage of YouTube displaying gamers and vlogger videos, and comments on an Instagram post. The participants were asked to identify the authorship, techniques, audience, frames, and purpose in each example and mark a tick in the respective category on the given response sheet. The participants were instructed to only mark those options of the media literacy framework which they could truly understand and identify, as the researcher will seek a rationale for their responses later.

After the pretest, the researcher delivered a 20-minute lecture to explain each component and the relative terminologies of the media literacy framework briefly with real-life examples. The participants were guided on analysing, interpreting, deconstructing, and identifying commercial interests as part of the media literacy Framework. At the third step, which was the post-test step of the experiment, the participants had to apply the Media Literacy Framework to the previously shown digital media content.

RESULTS

The following results were obtained from the participants during the whole experiment. Table 1 shows the pretest results which reflects how respondents perceived their understanding of media literacy elements.

Table 1: Pretest- Number of Participants Who Correctly Identified Media Literacy Elements

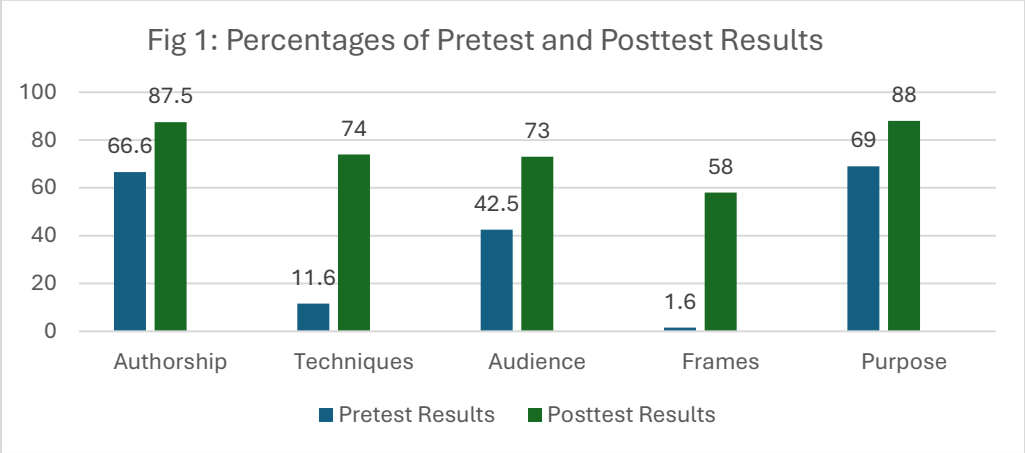
S. No.		**S.A.F.E Scale**				
	Media Literacy Framework	**Website** (Self-Identity)	**Video** (Activity Online)	**Youtube Homepage** (Fluency)	**Instagram comments** (Ethics)	**Overall Percentage**
1	Authorship	24	20	19	17	66.6%
2	Techniques	5	1	0	8	11.6%
3	Audience	11	16	16	8	42.5%
4	Frames	0	1	0	1	1.6%
5	Purpose	23	23	19	18	69.1%

Table 2 shows the responses of participants following their exposure to Media Literacy Framework and how that can help us in exhibiting informed digital citizenship.

Table 2: Posttest-Number of Participants Who Correctly Identified Media Literacy Elements

S.No	**Media Literacy Framework**	**S.A.F.E Scale**				
		Website (Self-Identity)	**Video** (Activity Online)	**Youtube Homepage** (Fluency)	**Instagram comments** (Ethics)	**Overall Percentage**
1	Authorship	28	27	27	23	87.5%
2	Techniques	26	24	17	22	74%
3	Audience	27	21	20	20	73%
4	Frames	19	18	16	17	58%
5	Purpose	25	27	28	26	88%

Figure 1 demonstrates the comparative trend in pretest and post-test results with the most significant differential in results in the areas of techniques and frames.



After conducting a comparative analysis of number of correct responses in the pretest and post-test, each response sheet was given a score out of 20 for both the pre-test and posttest depending on the number of right answers. Then a paired sample t-test was applied to the acquired scores of adolescents on S.A.F.E scale to measure the mean difference between pretest and posttest variables and find the significance level.

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pretest Score	7.60	30	2.513	.459
	Posttest score	14.07	30	2.164	.395

Paired Samples Correlations

				Significance	
		N	Correlation	One-Sided p	Two-Sided p
Pair 1	Pretest Score & Posttest score	30	.227	.114	.228

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	posttest score - pretest score	6.467	2.921	.533	5.376	7.557	12.125	29	.000

The paired sample t test indicated a statistically significant improvement in posttest scores as p value is .000.

DISCUSSION

The data obtained from this experimental study was an ultimate reflection of the significance of media literacy intervention. As the data in Table 1 reveals, during the pretest, the participants could identify the easier elements of authorship, purpose and audience, but they could hardly identify the frames and techniques as they are more complex in nature. The first example shown to participants was a screenshot of a website entitled "Digital Trends" offering cheat codes to all the video games popular in the age group of early adolescents. There was a third-party advertisement on the left of the webpage for redirecting the user to WhatsApp, where the user will get a swipe file for additional cheat codes. However, the WhatsApp window displayed that asking for the sensitive information of the user, like credit card details, was seamlessly embedded in the process of collecting personal information. But when the participants were shown the same website again after intervention of the media literacy framework, 28 participants quickly labelled it as a red flag, as the author was again an unknown third party with the sole purpose of generating clicks. Moreover, 26 students successfully figured out the techniques being used by the website, and 27 students knew that this was a projection that the most important thing in an early adolescent's life is to surpass their peers in reaching the advanced levels of the game.

Similarly, the second example was a 3-minute video entitled "Career Advice for Teenagers" by a famous podcaster, Azad Chaiwala from Pakistan, portraying his acclaimed mantra of preferring skills over degrees. This video was to check whether we should believe everything we see and hear online. This example was selected in relation to the activity in the online domain of the S.A.F.E scale. On initial exposure, only 11.6 % of participants were able to identify the trickier elements of techniques, while just 1.6% could identify the frames employed in videos. However, in the post-test, 27 students were able to point out that the source of the message was not official, and there was no authenticity in the messages being given in the video. The same 27 students were also able to depict the purpose behind the post, that was just to earn likes and shares rather than informing the target audience. Similarly, 24 students were able to reveal the techniques used in the video that were to exploit the relevance of students to this content, as exams were just around the corner. But just 18 students were able to contextualise the frame, as that was a trickier question, which needed long-term intervention and practice in the educational settings.

The third example comprised a home page of YouTube displaying videos of gamers and vloggers from different parts of the world who would just portray cars, cell phones and monetary outcomes as ultimate parameters of success with zero consideration for age-appropriate behaviours focusing on education and physical well-being. This variable was carefully chosen to help them understand the algorithms of digital media that tailor user's social media feed according to user's usage history, eventually putting the user in a virtual bubble. The most significant difference in protest and post-test results was noted in response to this example, with zero identification of techniques and frames. But the number of correct responses surged to 17 in the area of technique identification and 16 in the area of frame identification.

In the last example, a few comments were shown to students which were hurtful and derogatory on an Instagram post made by a teenager revealing his academic achievement. In the comments, the boy was mainly being called a Nerd for not doing the "Cool stuff" with his peers. This variable was chosen to validate the participants' understanding of the "ethics of digital environment" domain of the S.A.F.E scale. However, this was the only example where participants were able to render the comments as cyberbullying and had a clear understanding of obnoxious behaviours in digital spaces.

The data obtained from this experimental study portrays the notable difference in how audiences receive, perceive and respond to media messages with an extensive understanding of the underlying motives behind digital media content. As the data in Table No. 1 reveals, only 11.6% of total participants could correctly identify the first element of the media literacy framework across the four types of media content. Moreover, framing turned out to be the most underperformed area, as just 1.6 % of the total responses could correctly identify the framing of the message. Though the students could identify the easier elements of authorship, purpose and audience, it was really challenging for them to understand and detect the tricky elements of techniques and frames.

A close analysis of the overall outcome revealed that media literacy intervention doesn't work at the same pace in all domains of applying the media literacy framework to digital media. There are few areas that need continued training and hands-on activities in educational settings to develop a constant nudge in an adolescents brain for decoding the digital media messages, As Figure No. 1 shows that the areas of authorship with an overall positive response rate of 87.5% in the post-test and 66.6 % in pretest and purpose with positive response rate of 88 % in post-test and 69% in pre-test received a more rigorous and automotive outcome given the simplicity of identifying these elements in a digital media message. But the pre-test scores of frames and techniques were horribly low at 1.6% and 11.6 %. This again points towards the significance of long-term media literacy interventional measures in educational curriculum to deconstruct the media messages with the help of supporters, as regular classroom practice will ascertain that a literate media cohort of adolescents come out of academic circles.

As our significance level is 0.000, which is less than 0.05, we have statistical evidence to reject the null hypothesis. The results are supportive of the alternate hypothesis that the integration of media literacy education in educational settings will foster digital citizenship skills among early adolescents.
The difference in means of pretest (7) and post-test scores (14) also validates the alternate hypothesis, as there is a major increase in the mean of post-test scores.

CONCLUSION

We are busy teaching our early adolescents about the modalities of the physical world while their personalities, cognitions, and perceptions are formed and shaped somewhere else. For today's adolescents, getting more followers on social media platforms is considered as validation of social prestige than having more likes among the teachers at school, and reaching the advanced levels of games is thought to be more important than scoring high in class tests. It is the need of the hour to strike the right balance between online and offline lives so that young minds can reap the fruits of technology rather than fall prey to it. With a consistent increase in the number of individuals shifting to digital media platforms and the decreasing role of gatekeepers in contemporary media, the only solution is to acquaint the youth with the necessary skills set to mediate the overwhelming intrusion of digital media in their offline lives. It is the need of the hour to introduce vigilant reforms in the national curriculum of Pakistan and ensure that schools don't just deliver education about traditional citizenship but digital citizenship as well. It's about preparing a generation with the right lenses to view the world. The parenting and academic institutions of society can't stop adolescents from crossing the digital road, but we need to teach them how to do it safely and efficiently.

LIMITATIONS OF THE STUDY

The following are the limitations of the present study:

1. There is a need to conduct longitudinal studies on the efficacy of media literacy interventions in curriculum because media literacy is a continuum.
2. The study did not consider the outcomes of media literacy intervention concerning gender, socio-economic status, and hours spent with digital devices.
3. Because of restrained time and financial responses, the sample size was small as this subject must be investigated at a grand level.

ETHICAL CONSIDERATIONS

The experiment was conducted after obtaining the proper consent of parents through a consent letter, and only those participants were included in the study whose parents allowed them to be part of the study. No violent or harmful content was used in the experiment.

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APPENDIX A

Media Literacy Response Sheet

Name_____ Age_____ Class_____

Website	**Video**
I can Identify: 1. Authorship _____ 2. Techniques _____ 3. Audience _____ 4. Frames _____ 5. Purpose _____	I can Identify: 1. Authorship _____ 2. Techniques _____ 3. Audience _____ 4. Frames _____ 5. Purpose _____
YouTube Homepage	**Instagram Comments**
I can Identify: 1. Authorship _____ 2. Techniques _____ 3. Audience _____ 4. Frames _____ 5. Purpose _____	I can Identify: 1. Authorship _____ 2. Techniques _____ 3. Audience _____ 4. Frames _____ 5. Purpose _____