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Improving Children's Wellbeing through Media Literacy Education: an Irish Study

Introduction

Globally, children are voracious consumers of individually consumed digital media such as tablets, mobile phones, and consoles. Via diverse content including programmes, cartoons, songs and peer fronted channels, children are constantly exposed to commercially funded messages encouraging purchase behaviour. Product placement has doubled over the past decade (Guo et al., 2019). From a very young age children are aware of brands, yet the development of their cognitive defences is embryonic. While it has yet to be definitively agreed that advertising to children is detrimental to children's wellbeing (Rowthorn, 2019), there is enduring concern over the unintended effects of advertising on children (Opree et al., 2019). A substantive body of literature advocates for media literacy education to enable children to critically assess the content of marketing messages, empowering children so that they are informed consumers (De Pauw et al., 2018; Nelson, 2016). However there is a dearth of research focussing specifically on the relationship between the media practices of children, in terms of activities and competencies, and their wellbeing at pre-teen ages (Swist et al., 2015). This study responds to that gap by piloting a recently launched media literacy intervention designed to complement wellbeing curriculum in Irish primary schools, and considering if media literacy competences can impact children's wellbeing, addressing this gap in this literature.

Consumerism and Children's Wellbeing

Much of the research regarding children's wellbeing is informed by the literature conceptualising adult wellbeing, therefore it is necessary to draw on research in this field. Encompassing both cognitive and affective elements, Subjective Wellbeing (SWB) is defined as 'a broad category of phenomena that includes people's emotional responses, domain satisfactions, and global judgements of life satisfaction' (Diener et al., 1999, p277). As is the case for adults, the growth of children's consumer culture is firmly rooted in the hedonic approach toward wellbeing. Telic theories hold that an individual will experience a higher state of wellbeing once they have reached their goals, beyond biological needs. However, not all goals are created equally. Focussing on extrinsic goals such as materialistic goals of wealth, image and social recognition are counterproductive in terms of SWB (Moldes et al., 2019). While there is a paucity of research in the area of childhood consumerism and

SWB, the available evidence suggests that this thesis remains true for children (Opree et al., 2012). Relative standards theories advance understanding in this regard. SWB emanates from a comparison between a child's perceived status and another perceived standard from their past experiences, a societal or peer led standard, or an ideal state. Exposure to peer fronted commercial content promotes a focus on extrinsic goals. In-gaming purchase options aim to trigger immediate behavioural responses. Children compare themselves to a multitude of standards both internal (including goals) and external (including peers and past achievements). In this gaps model, comparisons that result in upward discrepancies lead to feelings of dissatisfaction whereas the opposite is the case for downward discrepancies (Michalos, 1985). Intrinsic goal pursuit such as focusing on relationships, self-actualisation and physical health aids SWB; extrinsic goal pursuit does not. For the most part, the new state of being becomes the revised standard and ceases to evoke the same positive emotions. In the context of this study, the hedonic treadmill (Diener & Ryan, 2009, p395) is evidenced by children's incessant demand for consumptive experiences, and ever increasing levels of childhood consumerism in society. Through advertising, media promote idealised social standards that children are encouraged to attain through the acquisition of goods.

Social comparison (Wood, 1996) amongst children is constant and media are very influential in this regard (Hobbs and Jensen, 2009). Remote social comparisons of the perceived value of possessions individuals hold are more likely to influence motivations in a covetous manner (Sirgy, 1998). Comparisons between children and persons within or outside the same community or country who possess similar characteristics, including age, gender or ethnicity, are more influential on extrinsic materialistic goals than situationally imposed comparisons of persons within the family circle or close friends. For behaviour to be imitated there must be a characteristic present that the child wishes to imitate. Adept at applying the principles of behavioural and social learning theories, commercial enterprises are increasingly employing covert mechanisms to influence the young consumer. Exposure to advertising, sponsored posts and product placement on user generated content sites is mainstream. YouTube is the most recognised content curator brand among those aged between 5 and 15 (Ofcom, 2019). Unboxing channels including "Ryan's Toy Review" and "Fun Toys Collector Disney Toys Review" are key influencers for younger children. For pre-teens, peer fronted YouTube channels such as "PewDiePie", "James Charles" and "Liza on Demand" sell entertainment and merchandise. Typically comparison effects are short term. Enduring effects occur when such comparisons shape long term goals. From a consumer behaviour perspective, a child's fluid self-image necessitates a continuous spiral of conspicuous consumption in order to define oneself (Hill, 2011). Schor's seminal work found that children who spent more time engaged with media are more likely to engage with consumer culture and children who are more engaged in consumer culture are likely to have lower

levels of wellbeing (Schor's, 2004, pp148-242). A recent study on children's online consumption in Ireland found that 92% of children aged 8-13 own a smartphone, and 65% use social media platforms (Cybersafe, 2020).

The relationship between media consumption and wellbeing is multifaceted and complex. Media consumption should not be considered in a pejorative manner. Media provide a source of entertainment, education and companionship. Nonetheless, media consumption can also have negative consequences. Peer pressure to conform, consumer culture ideals, and media influences are correlated with lower levels of wellbeing in children (Easterbrook et al., 2014). Indications are the relationship is nuanced and bi-directional. Twenge et al. (2018) detected a negative correlation between adolescents' psychological wellbeing and a variety of digital media formats (for example: internet, $r=-.11$, gaming, $r=-.08$ and television, $r=-.01$, $p=0.001$). Stiglic and Viner's (2019) systematic review found moderate evidence of a negative association screen-time and wellbeing when consumption was 2 hours or more. Most recently McDool et al. (2020) found that the amount of time spent online is inversely related to the wellbeing of 10-15 year old children; extra time spent engaged online decreased wellbeing scores across multiple dimensions. However, Oprea et al. (2016) uncovered a more nuanced relationship. They identified a positive correlation between advertising exposure and psychological wellbeing ($r=.17$, $p<0.001$), and a further correlation between psychological wellbeing and SWB ($r=.62$, $p<0.001$) amongst 8-12 year olds. All of this evidence suggests the relationship between media consumption and wellbeing has yet to be clearly determined. The ubiquity of digital communication platforms renders this concern topical now more so than ever, however the response of formal educational institutions is perceived to be lagging behind commercial enterprises (Bakan, 2011) in their endeavours to educate children about the marketplace. One action educational institutions can take is to nurture cognitive defences including media literacy skills in young consumers (Sekarasih *et al.*, 2019). At present media literacy is addressed in an ad hoc manner via the wellbeing curriculum in Irish primary schools, yet media literacy is inherently associated with wellbeing given the extent to which media shape multiple facets of society (Pathak-Shelat, 2013).

Media Literacy Education

In the digitised environment children occupy, a wholly protectionist approach to media literacy education is no longer fruitful. Nonetheless, children remain a vulnerable group in society, and require competence building strategies to assist them in their development of critical media literacy skills. Co-regulation, along with participatory approaches to media literacy education are needed. Throughout Europe efforts are ongoing to promote media literacy via

information sharing events, funding programmes and the work of an expert group who are exploring synergies between EU policies and media literacy initiatives. As of yet, educational institutions across Europe are sluggish in their endeavours to educate children about the marketplace. There is demand for policymakers to develop a media literacy strategy for both primary and secondary education that employs participatory media literacy curricula (McDougall, 2018). Media literacy interventions highlighting the persuasive intent of organisations are indispensable. Rather than inoculation against negative effects, interventions should seek to increase this form of persuasion knowledge as it will empower children to critically evaluate commercial messages and make informed choices (Hobbs, 2011, Martens, 2010). Advertising literacy, one component of media literacy, provides a cognitive defence to persuasive marketing appeals, enabling informed assessment of message content. Advertising literacy 'refers to an individual's knowledge of, and abilities to cope with, different types of advertising techniques' (Hudders et al., 2016, p. 911). Recent recapitulations depict it as threefold: conceptual advertising literacy, attitudinal advertising literacy and advertising literacy performance (Rozendaal et al., 2016). In the rapidly developing digital media landscape, scaffolding the development of advertising literacy in children develops their knowledge of how compelling marketing appeals are crafted.

The influence of media on children's decision making is not a straightforward process. While the psychological, social science perspective offers much value in terms of our understanding of media literacy education (Jeong et al., 2012; Martens, 2010), the constructivist, interdisciplinary, approach is favoured by many (Bazalgette and Buckingham, 2013; Hobbs and Jensen, 2009). These perspectives need not be viewed as mutually exclusive. Children are capable of deriving pleasure from media messages while also critically appraising message content, actively constructing their own knowledge. It is incumbent on educators to enable children to build knowledge structures relating to message source, message content and media effects (Potter, 2004) and develop their skills in applying this knowledge. As children's cognitive abilities mature, they will be in a position to critically reflect on key media concepts of production, language, representation, and audience (Buckingham, 2003). Cognitive and affective processing need not be viewed discretely. Austin's (2007) Message Interpretation Process (MIP) model is useful in elucidating the complex relationship between media and decision making in children. Children consider the truthfulness of message content, the consequences of performing the behaviour and social norms prior to enacting the behaviour. Identification with references groups in a message results in an expectation that conforming to the behaviours suggested in the message will bring positive consequences. Over time the elaboration required diminishes and heuristics are employed to accept or reject the message senders' appeal. To this end, promoting and reinforcing logical and affective heuristics such as message sender credibility and perceived realism is a

requirement of media literacy interventions. Media literacy interventions targeting logic and emotional aspects of information processing will stimulate in children a propensity to be sceptical of marketing messages.

Studies concerned with the relationship between media literacy education and wellbeing are diverse in nature and increasing in number. Qualitative studies have tended to document children's digital literacies, online experiences and their relationship with wellbeing (Kosic, 2018; Nansen et al., 2012), whereas quantitative studies have focussed more on measures of screen usage or advertising exposure and their effect on wellbeing (Twenge, 2018; Oprea *et al.*, 2016). Numerous effects of media literacy interventions have been documented. Jeong et al.'s (2012) meta-analysis found that effects are greater on media related outcomes such as knowledge ($d=1.12$, $p < .001$, 95% CI: 0.77 to 1.47) and attitudes ($d=.28$, $p < .001$, 95% CI: 0.17 to 0.39) as opposed to behaviour related outcomes ($d=.23$, $p < .001$, 95% CI: 0.15 to 0.31). This may be due to the focus of interventions on critical thinking, or the fact that behaviour related outcomes are more latent in nature. As per the MIP, interventions that engender critical thinking are likely to result in behaviour change. However, at the present time the effect of media literacy interventions on children's wellbeing is under-researched.

Promoting Wellbeing in Irish Primary Curriculum

The move from protectionism to the empowerment of children is evident in primary school curriculum in Ireland. Curriculum advocates developing capacity to enable children to make informed choices, and this extends to media consumption. The Social, Personal, Health Education (SPHE) subject seeks to promote the health, wellbeing, and personal development of children, and to enable active citizenship (DoES, 1999). In doing so, wellbeing is separated into three strands; 'myself', 'myself and others', and 'myself and the wider world'. The SPHE primary programme is designed for delivery over a two-year block when children are aged 5-12 and each advancement builds on the earlier themes. Within the 'myself and the wider world' strand of SPHE, media education is one unit. As the learner progresses through the subsequent primary school years, the number of lessons increase. Similarly, the aims of the media education unit advance from recognising the purpose and the form of an advert, to appreciating the persuasive intent of advertising messages, and ultimately enabling primary school children to become critical in their developing attitudes towards advertising. Yet, as is the case across Europe, media literacy education in Ireland is neither treated as a separate mandatory subject nor a mandatory subject component. The extent to which every strand of the SPHE programme is addressed in each school and classroom is at the discretion of the individual school. Although it may prove challenging to

incorporate multiple aspects of media literacy into a crowded primary curriculum, particularly in the earlier stages, media literacy education that encompasses advertising literacy has the potential to inform children's consumption of media messages and marketing appeals. Presently, children complete the compulsory Stay Safe Programme (Cullen et al., 1998) through their SPHE primary education. However, the substantive focus of this programme is on safe practices when using the internet and social media rather than media literacy. Units include Safety on the Internet, Bullying, and Child Abuse. This is the minimum amount of media literacy education that a primary school pupil is currently exposed to. Such content is a singular form of digital media literacy and is essential. However, scope remains to expand the media literacy teachings in class.

There is a renewed focus on improving children's wellbeing within the education environment in Ireland. Developments in media literacy teaching resources evidence the changing agenda. Debate is emerging that in order to navigate the prevailing consumer culture, primary school curriculum must aim to develop multiple media literacies in children. To this end, a series of discretionary media education teaching guidelines and sample lessons plans are available for primary school educators in Ireland (Webwise, 2020; PDST, 2016). The most substantive resource presently is 'MediaWise' (Safefood 2017), a recently launched comprehensive media education teaching resource, which focuses on multiple media literacies including advertising literacy. Aligned to learning outcomes of the SPHE subject, the resource consists of eight interactive lessons and lesson plans for each two-year block.

This study contributes to this nascent debate by considering the extent to which four 'MediaWise' lessons can impact children's levels of wellbeing. The key objectives were to pilot the existing intervention, to test its feasibility in a school setting and to address the gap in the literature around whether media literacy can impact children's wellbeing (H1), to find out if the intervention works better for children with lower wellbeing to begin with (H2), and to explore whether gender or screen consumption are important predictors of children's wellbeing (H3).

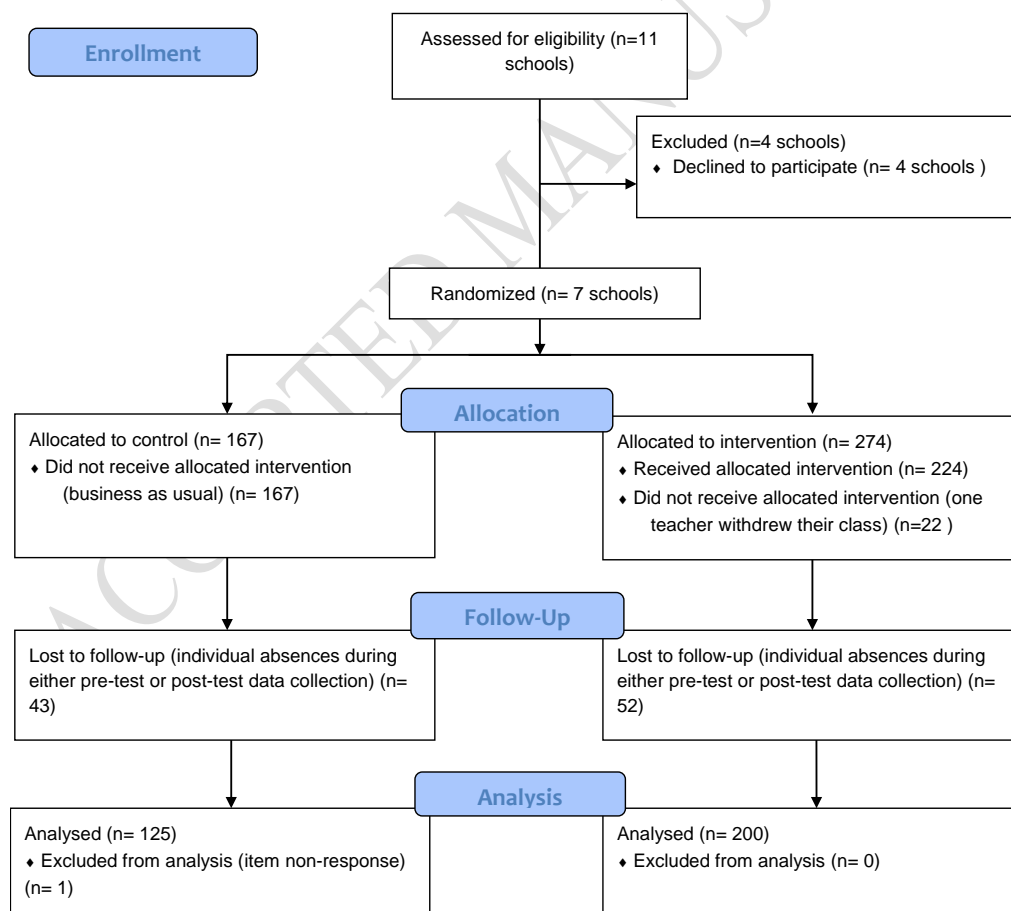
Materials and Methods

Design

A pilot randomised controlled trial (RCT) was carried out to investigate the effect of a media literacy intervention on wellbeing. Experimental designs are commonly employed to investigate the effect of an intervention on elements of persuasion knowledge, yet there is an absence of studies employing a randomised controlled trial design. Pilot RCTs afford an opportunity to assess

the acceptability of an intervention (Feeley et al., 2009). Pre-test data was collected at the beginning of primary school term 2, between the 16-01-2018 and 07-02-2018. Post-test data collection took place approximately 10 weeks later (allowing for mid-term breaks) between 13-03-2018 and 02-05-2018. Pen and paper based personal surveys were employed to measure the baseline outcome and to measure any change in the outcome at post-test. Prior to data collection commencing, the questionnaire was piloted to assess ease of interpretation of questions, and to ensure reasonable completion time of 20 minutes.

Figure CONSORT 2010 Flow Diagram of Participants



Participants

During the initial recruitment phase in 2017, the principals of eleven schools in the Republic of Ireland were approached via telephone, seven schools elected to take part. In total, 441 children from 17 classrooms took part in either phase of the study. Attrition (detailed in Figure 1) is accounted for by individual absences on either data collection day, and the withdrawal of one complete class from the study. Their teacher had not completed the lessons prior to post-test data collection, citing a lack of time within the school calendar as the reason for this.

Paired data was obtained from 324 children between the ages of 8 and 11. It is well documented that as children mature their cognitive abilities to assess marketing messages become more sophisticated. From the ages of 7-12 they progress from considering consumption in symbolic terms to solidifying their consumption behaviour (Achenreiner and John, 2003). Coinciding with this progression is a substantial development in their persuasion knowledge (Rozendaal et al., 2011). These ages align with third class (year 5) and fourth class (year 6) in primary school. There was an almost even split between third class and fourth class respondents: 51.5% (n=167) and 48.5% (n=157) respectively. The mean age of third class children was 8.8 years (SD =.44) and the mean age of fourth class children was 9.7 years (SD= .51). 54.3% of the sample were girls (n=148) and 45.7% were boys (n=176).

The Intervention

The amount of resources available for media literacy interventions is limited but growing. MediaWise is a free, eight lesson resource, available online. Developed to complement the Irish curriculum, its design was informed by educators, advertising practitioners, and regulatory bodies in Ireland. Taking a Piagetian approach, unique resources were designed for four different stages; junior and senior infants, first and second class, third and fourth class, and fifth and sixth class. The MediaWise resource can be accessed here: [https://www.safefood.eu/Education/Primary-\(ROI\)/MediaWise.aspx](https://www.safefood.eu/Education/Primary-(ROI)/MediaWise.aspx). The content links to subjects across the primary curriculum including SPHE primarily, alongside English, Drama and Visual Arts, incorporates a variety of classroom activities including worksheets and discussions (Safefood, 2017), and maps to the media strand learning outcomes in the SPHE curriculum. The expanded learning outcomes for each lesson indicate that Austin's (2007) recommendations for the inclusion of logic and affective elements, to promote a balanced assessment of marketing messages, are encompassed in the materials. Alongside promoting the recognition of advertising, and the understanding of the motivations of advertisers, children are encouraged to

understand that everyone has a point of view and to recognise how different elements that are used in the media can affect emotions. In addressing affective elements of media effects MediaWise makes a novel contribution to the media literacy educational materials available presently. A participatory approach to media literacy education is adopted, the lessons encourage active collaboration and engagement in the production of media campaign elements. Informed by best practice guidelines (see Potter, 2014; Buckingham et al., 2007), worksheets are plentiful, clear instruction for teachers is provided, and current advertising examples are included in the resource. Prior to launch the resource had been pilot tested with teachers. This paper reports its effectiveness in a classroom setting. Corresponding to the age of children included in the study, the MediaWise materials developed specifically for third and fourth class were employed. The resource consists of eight 40 minutes lessons of media literacy. Given the purposes of this study was a pilot RCT, the crowding of curriculum, and practical time constraints, the effect of four doses (lessons one to four inclusive) was considered. The objectives of the four lessons delivered were as follows; lesson one seeks to enable children to recognise the omnipresence of media and to understand the motivations of advertisers. Lesson two's objective is to understand that everyone has a point of view. Lesson three enables children to recognise different elements that are used in the media, and explain how they can affect emotions. The objective of lesson four is to differentiate between a need and a want. There were eight associated activities entailing a combination of talk and discussion, collaborative learning, active learning and the development of media literacy skills via environmental content.

The intervention providers were teachers who voluntarily agreed to take part in the study. Materials were not discussed verbally with teachers until after baseline data was collected. At this time, each teacher in the intervention group received verbal instruction along with an individual lesson pack. Contained within the lesson pack was a coversheet outlining the purpose of the study, a copy of the four lesson plans, copies of the associated worksheets for children and four intervention record proforma.

Lessons were delivered during the weeks from 01-02-2018 and 26-04-2018. It was the intention that 160 minutes of the MediaWise intervention was delivered to each class in the treatment group. Fidelity records evidenced characteristic classroom time constraints, teachers reported that on average 150 minutes was delivered to classes in the treatment group. The intervention was delivered with moderate fidelity. While there was attrition in the number of lessons delivered, seven of the nine teachers delivered 75 percent of the lessons and just under half of the teachers delivered all four lessons.

Outcomes and Measures

Wellbeing outcome

The Kidscreen 27 item (Ravens-Sieberer et al., 2007) measure of SWB was employed to assess the effects of the intervention on children's wellbeing. The Kidscreen measure includes cognitive appraisals of satisfaction with a number of life domains. 5 point semantic differential, interval frequency scales were utilised to measure five dimensions of physical wellbeing (five items), psychological wellbeing (seven items), autonomy and parents (seven items), peers and social support (four items), and school environment (four items). From these a summated score was calculated and utilised in the analyses reported. The internal consistency of KIDSCREEN 27 measure of SWB was robust, α pre-test = 0.88 and α post-test = 0.90. The Intra Class Correlation (ICC) two way mixed effects model, consistency, coefficient (ICC=0.82, 95% CI [.780, .858]) indicated that the test-retest reliability of the wellbeing measure was excellent (Cicchetti, 1994).

Covariates

Global estimates of the time spent consuming media can be challenging to recall, not only for children (Ofcom, 2017) but also during survey research data collection. No panacea for measuring media consumption exists. Given the potential for overlapping digital media consumption (such as duplication of the internet and television) and simultaneous media consumption (for example of mobile phones and television) at best a measure can provide an indication of media consumption. The scale employed was adapted from Nairn et al. (2007), it comprised a series of 4 point (never – everyday) ordinal scales to uncover weekday and weekend consumption, from this a summated score was calculated. The original scale had three time horizons; weekdays, Saturdays and Sundays. In order to avoid an overly cumbersome measurement instrument, and respondent fatigue, the time horizons were reduced to two for this study. Saturdays and Sundays were reduced to one 'weekend' time horizon. This resulted in an 11 item scale measuring screen consumption. The screen consumption measure of digital media consumption also indicated good internal consistency, α = 0.86. The covariate of gender was recorded on a nominal scale. The findings reported herein relate to the wellbeing outcome. Other outcomes measured in the study included advertising literacy (see O'Rourke et al., 2019).

Ethics

The study was approved by the Research Ethics Committee of Queen's University, Belfast, in November 2017. Active consent to take part in the study was gained from the school principal, the parent/ guardian, the child, and from teachers taking part. For situations where one party did not consent, the child participant was still able to engage in the data collection activities in the classroom but their data was not included in the study.

The design of the research was so to minimise the time burden on all parties. During classroom visits, time was taken to introduce the research topic to build capacity and obtain informed consent from children. The researcher was careful to explain that there were no right or wrong answers, and remained present during data collection. This helped avoid peer pressure or unintended coercion from the teacher (Barker & Weller, 2003). To introduce an element of "fun" into an inclusive data collection process, children were invited to post their questionnaire into a decorated post box. Affording children the opportunity to actively return their questionnaire promoted movement and a more playful atmosphere in the classroom. Teachers in the control group received a copy of the intervention materials after post-test data collection was completed. As a token of appreciation for participating in the study, schools received a copy of the findings, teachers were compensated by means of a box of chocolates, and, after consultation with teachers, each class was compensated by means of a board game.

Allocation and Blinding

Purposive sampling enabled representation of characteristics including school size, geographical location and socio-economic standing. To increase similarity between the groups, stratified randomisation at a school level was conducted by means of paired allocation on the basis of school size. Allocation to both groups was made by a simple lottery procedure and was carried out by an independent third person. In total, nine classes in four schools received the intervention while seven classes in three schools represented the control group. No masking took place. Although a lack of blinding can affect participation in the trial and trial outcomes, as is commonly the case, the design of the study did not facilitate concealing group allocation. It was not possible to administer a placebo to the trial group. All teachers in the control group completed a pro forma check sheet to determine if any media literacy was taught during the trial. Of the seven, one teacher reported that they had spent one hour on the topic of 'what is a product, what is an advertisement?', while the other six had

not spent any time on media literacy. Instead, they reported that their attention was focussed on requisite 'Stay Safe' Personal Safety programme. No changes were made after the trial commenced.

Analysis

Data were analysed using SPSS v.26. The wellbeing scale variables were standardised preceding analysis. Multiple regression modelling enabled the assessment of the impact of the intervention on wellbeing when controlling for pre-test scores and gender. The screen consumption scale was standardised prior to exploring its relationship with wellbeing (post-test). The impact of gender as a covariate on the relationship modelled was explored by means of a dummy variable. Assessment of normality, linearity, homoscedasticity and independence of residuals was satisfactory.

Using an effect size of 0.37 (Jeong et al., 2012), a power calculation was carried out using G Power v.3.0.10. The power for multiple linear regression using 3 predictors was determined as being 0.95 and is above the requisite 0.8 necessary to avoid committing a type two error (McCrum-Gardner, 2010). The data are clustered however the study (as it is a pilot study) is not sufficiently powered to take this into account in the analysis.

Findings

At both time points, the mean scores for each of the five wellbeing dimensions were first computed prior to obtaining an overall mean wellbeing score (see Table 1). At both T1 and T2, children rated the dimensions of 'peers and social support' and 'psychological wellbeing' highest, while 'physical wellbeing' and 'school environment' were rated lowest. Table 2 delineates the pre-test and post-test raw wellbeing mean scores for both the control and intervention groups. The raw post-test wellbeing score of children in the intervention group is higher ($\bar{x} = 4.14$) than that of children in the control group ($\bar{x} = 4.02$).

Table 1

Descriptives

	Pre-test			Post-test		
	N	\bar{x}	SD	N	\bar{x}	SD
Physical Wellbeing (5 items)	384	4.00	0.64	378	4.11	0.62
Psychological Wellbeing (7 items)	384	4.16	0.58	379	4.17	0.61
Autonomy and Parent Relation (7 items)	380	3.74	0.74	377	3.87	0.74
Peers and Social Support (4 items)	378	4.35	0.69	377	4.38	0.69
School Environment (4 items)	379	4.07	0.72	377	4.05	0.75
<i>Outcome: Wellbeing (Health Related Quality of Life) (27 items)</i>	386	4.04	0.49	379	4.09	0.52
Screen Consumption(11 items)	386	2.37	0.70	378	2.42	0.69

Table 2

Pre and Post-test Raw Wellbeing Mean Scores

	n	\bar{x}	SD
Overall Wellbeing Pre-Test Score	386	4.04	0.49
Overall Wellbeing Post-Test Score	379	4.09	0.52
Wellbeing Pre-Test Score – Control group	141	3.97	0.50
Wellbeing Post-Test Score – Control group	151	4.02	0.56
Wellbeing Pre-Test Score – Intervention group	245	4.07	0.47
Wellbeing Post-Test Score – Intervention group	228	4.14	0.48

An independent t-test confirmed a statistically significant difference between the post-test wellbeing scores of the control and intervention groups ($t(377) = -2.316, p = .021$). Correlation analysis determined a shared variance of 49.1% ($r(326) = .701, p = <.001$) between pre-test and post-test wellbeing scores. Multiple regression modelling enabled exploration of the relationship between post-test wellbeing scores and the effect of the intervention when pre-test wellbeing scores and gender were controlled for; *H1: a media literacy intervention can increase wellbeing when pre-test wellbeing scores and gender are controlled for*. As Model 1 ($(F3, 322) = 110.992, p = <.001, R^2 = .508$) (Table 3) shows, on average children in the intervention group experienced an increase of $\beta .168$ ($p = .037$) in their post-test wellbeing scores when pre-test scores and gender were controlled for, therefore H1 is accepted.

Table 3

Model 1 Multiple Regression Analysis: Impact of a Media Literacy Intervention on Wellbeing

Effect	Estimate	SE	95% CI		p
			LL	UL	
Intercept	-.184	.077	-.336	-.033	.017
Allocation	.168	.080	.010	.325	.037
Wellbeing Pre-Test Z Score	.683	.040	.605	.762	.000
Gender	.213	.078	.059	.367	.007

In order to ascertain if the intervention was having a greater effect for those with lower initial wellbeing scores an interaction term (between group allocation and pre-test wellbeing scores) was created and H2 was explored: *there is an interaction between the intervention and pre-test wellbeing literacy scores that helps to predict post-test wellbeing literacy scores*. As the interaction term did not produce statistically significant findings ($\beta -.080$ ($F4,$

321) = 83.499, $p = .316$), it is concluded that the intervention is not having a greater effect for those with lower initial wellbeing scores.

Table 4

Model 2 Multiple Regression Analysis: The Relationship Between Wellbeing and Media Consumption

Effect	Estimate	SE	95% CI		p
			LL	UL	
Intercept	-.328	.097	-.518	-.138	.001
Group allocation	.253	.103	.052	.455	.014
Media Consumption (Z score)	-.107	.051	-.206	-.007	.035
Gender	.336	.101	.137	.535	.001

The relationship between wellbeing and covariates of gender and media consumption was also explored: *H3: Post-test wellbeing scores can be predicted by group allocation, gender and screen consumption.* Model 2 (($F_{3, 374} = 7.548$, $p = <.001$, $R^2 = .057$) (see Table 4) shows that when covariates in the model are controlled for, girls are reporting higher levels of wellbeing ($\beta = .336$, $p = .001$). Furthermore, when group allocation and gender are controlled for, screen consumption has a statistically significant negative correlation with wellbeing ($\beta = -.107$, $p = .035$). Thus H3 is accepted.

Discussion

Media literacy education is a designated component of wellbeing curriculum in primary school presently. However the nature and extent of it is at the discretion of individual primary schools in Ireland. This study focuses on the linear relationship between media literacy education and wellbeing, exploring the impact of four MediaWise lessons on the wellbeing of children aged 8-11.

In addition, the relationship between wellbeing, gender and screen consumption was explored. Research in this area is important because experimental studies evaluating the effectiveness of a media literacy intervention on children's wellbeing are sparse, even though, as this study confirms, media literacy interventions in a school based setting can improve children's wellbeing.

Although Table 1 reports positive wellbeing scores for children in Ireland, they are slightly lower than the 4.25 reported in Shannon et al.'s earlier (2016) study of 8-9 year olds in Ireland. Children in this 2018 study are reporting higher mean scores in one dimension, physical wellbeing, which is welcoming, however across the other the other four dimensions of wellbeing, children are reporting lower mean scores. This evidence suggests that interventions designed to improve children's wellbeing are valuable. Similar to other studies (van Hoorn, 2008; Diener et al., 1999) the findings show that girls are reporting higher levels of wellbeing ($B=0.335$, $p=0.001$), underlining the importance of teaching for wellbeing in a school setting to ensure that boys and girls have equal opportunities to learn how to improve their wellbeing. While the diversity of measures of media consumption and delineations of SWB render direct comparisons challenging, the effect sizes detected in this study are in keeping with those identified in earlier studies (see Twenge et al., 2018) and support claims that children are sizeable media consumers. In this climate of consumerism, these findings underline the value of developing in children increased knowledge and skills that enable them to manage their wellbeing.

It is vital that all determinants of wellbeing are given due consideration and society makes efforts to manage them appropriately. Screen consumption has been found to be one correlating factor. It must not always be assumed that the relationship between screen consumption and wellbeing is adverse or consistent in terms of direction or magnitude as children mature. It is necessary that a balanced view of the role media play in children's lives is maintained. Along with parents and peers, educators must endeavour to promote positive effects and mitigate against adverse effects of media consumption. Yet school for the most part still does not address the advertising effects of commercial forces in a child's life. As children mature they graduate to owning a smartphone, they consume a wider variety of media, and consumption is often more frequent. Regulation and inoculation are insufficient responses by the adult society who have a duty to inform as well as safeguard children. Increased media literacy education can aid equilibrium in children's interpretation of commercial message content, and positively influence their wellbeing. The effect size detected in this study ($\beta = .168$, $p = .037$) is comparable with effect sizes identified in a recent meta-analysis of the impact of school based social and emotional development interventions. Goldberg et al. (2019) identified mean effect sizes for the following outcomes: social and emotional adjustment ($d = .220$), behavioural adjustment ($d = .134$),

and internalising symptoms ($d = .109$). The small but significant effect size detected herein evidences the valuable contribution media literacy education can make to improving children's wellbeing. Media literacy education for children that broadens its focus from the components of media and the communication process, to encompass advertising literacy, will promote the development of cognitive defences and logical heuristics. This will enable children to make informed assessments of overt and covert commercial messages, commonly saturated with persuasive appeals.

Implications

For the past number of decades calls are being made for pedagogy that educates child consumers about advertisers' motivations, enabling them to make informed assessments of marketing messages they are exposed to. Such teaching materials now exist. In Irish primary schools this topic is accommodated for in the wellbeing curriculum, yet crowded curriculum limits the opportunity to engender multiple media literacies in children. In classrooms, currently delivery of media literacy lessons that go beyond online safety is ad hoc at best. By means of an experimental design, this study evidences the positive effect participatory media literacy education teaching strategies have in increasing children's wellbeing scores. These statistically significant findings lend weight to the argument that school has a pivotal role to play in educating for wellbeing. Given the straightforward, manualised nature of this tested programme, it is encouraging that it produced such effects. Scaling up delivery of MediaWise in schools is achievable. Lessons were delivered by teachers, as per the manual instructions. Training of teachers is not required and so MediaWise is easily implementable by schools with little additional investment or effort. Opportunities exist to engage children further by introducing gamification strategies to increase cognitive and affective engagement with media literacy educational content. Developing extension activities such as activities in the home, and media literacy educational materials for on-line and social platforms, will create a third space for media literacy education. Such additional pedagogical approaches require development and further testing. The results of this study corroborate a sizeable body of evidence that argues for the inclusion of media literacy as an essential component of contemporary primary curriculum (Livingstone et al. 2017; Hobbs, 2011; Martens, 2010). This education should begin as early as possible in the primary curriculum, for teaching wellbeing can have enduring positive effects (Langford et al., 2014). These findings add weight to the emerging discourse in Ireland regarding the role media literacy should play in contemporary primary education.

In endeavouring to accommodate contemporary curriculum, the Department of Education in Ireland must consider media literacy education further. The challenge presented currently is inclusion of such materials as compulsory curriculum. While benefits of media literacy are evident, it is unrealistic to expect teachers to afford time for optional media literacy curriculum when curriculum is already crowded. For change to occur, education policy modification is required to ensure that media literacy is accommodated. As a starting point, an amendment in the directive from the Department of Education to increase the amount of time afforded to SPHE would enable those teachers who wish to include media literacy in their teaching to do so. If media literacy is designated an essential component of SPHE, a schoolwide collaborative approach could be adapted, similar to that of the Stay Safe programme. Each class could address the same strand unit (for example Advertising Literacy) simultaneously. This approach maximises the potential to shape group norms in the school setting.

Limitations and future research

This study did not delineate further than global SWB in its analysis, the relationship between the dimensions of SWB and digital media consumption warrant further exploration. This study ascertains a direct relationship between media literacy and SWB, a further research opportunity exists to explore the exact mechanisms by which media literacy education shapes beliefs and behaviours that influence wellbeing. Given that this was a pilot study, the trial is underpowered and unable to account for the clustered nature of the data. An opportunity for a full scale randomised controlled trial exists. This study was designed to measure short term outcomes. It was therefore not capable of determining the extent to which changes in the outcome measured are enduring as children mature. Opportunities for longitudinal studies are presented. In order to develop a more co-ordinated approach to media literacy education across Europe, more empirical studies of this nature are required. It would be useful for future research to replicate this study across the EU member states, with a view to informing pan European media literacy education policy.

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