RAISING AWARENESS AMONG CHILDREN ABOUT THE POSITIVE AND NEGATIVE EFFECTS OF SOCIAL MEDIA USING RESEARCH-BASED THEATRE

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**Master Thesis
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KOPER GIETERY

Abstract

Background: Countless caregivers, educators, policymakers, and researchers are concerned about the role social media plays in children's well-being. Therefore, children often get prohibited from using social media which leads to frustration among them. However, there is little known about how aware children are of the effects of social media or how it affects their well-being. Therefore, it is important to translate knowledge about what is known about the effects of social media on children.

Objectives: The aim of this study is to investigate whether the Research-based Theatre show *PRESS Play.* is the right instrument to translate knowledge and make children more aware of the effects of social media.

Design: A total of 137 children between 8 and 15 years old who visited *PRESS Play.* participated in different surveys and interviews. In addition, analyzes were made of the choices children made during the show via control knobs, which gave them control over what happened in the show.

Results: Through *PRESS Play.*, children experienced an immediate decrease in how much they liked social media and developed a better understanding of the fact that they are not always in control over what they experience on social media. Most children already possess some or even a broad set of knowledge about social media and its effects. Yet through *PRESS Play.* a group of children became more aware of the effects that social media can have on themselves.

Conclusion: *PRESS Play.* opens the discussion about the effects of social media between caregivers/educators and children more easily which could lead to more awareness and a safer and more conscious use of social media.

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1. Introduction

We live in a hybrid reality where the offline world is interactively and dynamically intertwined with online contexts (Granic et al., 2020). The digital age of today has both connected and disconnected individuals from their social environment at a rapid pace, especially with the rise of social media. Social media led to more frequent, immediate, and intense interactions between individuals than ever before. There is a huge grey area of platforms and apps where some literature considers them as social media while other literature excludes them. However, what we mean by social media are computer-mediated technologies that enable individuals and organizations to exchange, share, and create information in virtual communities and networks. This includes social networking sites (e.g., Facebook, Instagram, TikTok, Snapchat), social gaming tools, text messaging and messaging apps, YouTube, and many more sites.

Children and young adolescents in particular are influenced by social media due to their frequent online activity. On average, they consume almost three hours on social media every day (Oosterveer, 2023). Consequently, these online activities either increase their well-being positively or negatively (Van der Wal., 2023). Well-being can be conceptualized as a construct that includes psychological adjustment and negative maladjustment (Houben et al., 2015). In childhood and young adolescence, individuals develop themselves constantly and will have a conscious influence on their well-being for the first time. Therefore, it is important that they learn to understand the effects of social media since those effects can have an impact on their well-being. The unlimited opportunities and the endless interactions with others that social media provides are factors why children and young adolescents could be extra sensitive to social media.

The high number of hours children and young adolescents spend online led to debate over the last decade by researchers, caregivers, educators, policymakers, and the media about whether or not the effects of social media affect children's well-being negatively. It is partly supportable and logical that people are concerned about the effects of social media. That a part of society is sceptical and careful with the use of social media is therefore good, but the way children get informed about social media should be different. Previous studies often investigated the link between screen time and children's and young adolescents' well-being. Though, literature showed surprisingly few easy answers. This led to a contradiction between studies where some (Beardsmore, 2015; Kross et al., 2013; Nesi, 2020; Wilson, 2008; Zuo, 2014) explained social media to have many adverse effects on children, while other studies (Keles et al., 2019; McDool et al., 2020; Orben et al., 2019) stated that there were few to no

effects. In society, the focus is often on the negative aspects and on prohibiting children from using social media (Spears, 2019). Therefore, it is important to let society understand that there are positive effects to the usage of social media and that it is important to educate children about both the possible positive and negative effects. To do so, a better understanding of the underlying reasons why children and young adolescents find this digital world so important and interesting is needed. Then, ways to raise awareness about this digital world can be created, without arousing resistance among children and young adolescents. One way to do this is through knowledge translation, which refers to the process of transferring research findings from the academic environment into the hands of people and organizations that can apply them in practice.

In this study, we will measure whether awareness of the effects of social media on children and young adolescents will be raised through experiencing *PRESS Play.* – a Research-based Theatre (RbT) show. This form of knowledge translation consists of theatre shows that aim to present research in a fascinating and compelling way. *PRESS Play.,* which was developed by the theatre collective PlayField and theatre Kopergietery, was based on scientific knowledge and input from children's and young adolescents' views on and interactions with the digital world. This study focuses on children and young adolescents aged 8 to 15 years, as they are in the transitional phase of using social media and are still exploring themselves and social media. From now on, children and early adolescents will be referred to as children in this study. With the use of *PRESS Play.* this study wants to investigate the following research question:

How could Research-based Theatre be a useful tool to raise awareness about the positive and negative effects of social media on the lives of children between 8 and 15 years old?

2. Theoretical framework

Today's children are being raised in a world that is distinct from the world in which previous generations grew up. Other generations grew up in an offline world, while children today grow up in a hybrid reality where the offline world is intertwined with the online world (Granic et al., 2020). The online world has grown rapidly which led to an increase of unclarity in the distinction between online and offline spaces. Consequently, the boundaries of children's hybrid reality are likely to be even more blurred in the decade to come (Kelly, 2019). Access to the digital world provides children not only with typical interactions with family, friends, and peers like in the offline world but also with companies and strangers who attract their attention. According to Boyd (2010) many children who have been raised with tablets and phones in their households no longer see a functional difference between their physical, offline interactions and their digital, online interactions.

Despite the increased digital changes in society, each generation still has to fulfill the same needs and developmental tasks as any other generation has done in each phase of their lives. Each life phase has many different identity developments with different needs and goals that develop as an ongoing and complex process throughout a person's life. For instance, children thoroughly identify with and follow social norms and beliefs through childhood and early adolescence. Their desire to be socially accepted and to fit in takes precedence over other psychological conditions (Granic et al., 2020). Children are still mostly dependent on their caregivers, while in mid-adolescence the independence from their caregivers increases and self-exploration becomes a crucial part of their identity development (Adams & Marshall, 1996). The formation of close connections with peers, growing independence from caregivers, and identity discovery are all crucial phases of development that start in childhood and evolve during adolescent life (Nesi, 2020). Mid-adolescents and older adolescents already have a better construction of a coherent identity, while children and early adolescents have yet to discover and learn their identities (Eriksen, 1968). Our focus in this study lies on children who are in the process of being quite dependent on their caregivers, but also slowly trying to detach themselves from their caregivers.

On their way to more independence, children are in the transitional phase of possessing a smartphone, with the average age at which they possess a smartphone in Belgium being 10.4 years in 2018 (Jagers, 2018). When children possess a smartphone their access to the digital world increases drastically. Therefore, caregivers often consider many factors when deciding whether to give their child a smartphone, such as internet access, staying in touch, social connections, distractions, and maturity to deal with the risks of social

media and violent online content. The study by Sun and colleagues (2022) concluded that there was no connection between the age at which children acquired their first smartphone and their grades, sleep patterns, or depression symptoms. Thus, getting children to use smartphones at a young age was not linked to any problems; nor was giving them smartphones at an older age. Whether they are in this transition phase of possessing a smartphone or not could be an important moment to create awareness about their smartphone use and social media use in particular since during this phase children start exploring new platforms and build new habits.

Many caregivers, educators, policymakers, and researchers are worried about how the effects of social media impact children. McDool and colleagues (2016) stated that the use of social media needs to be limited during childhood to help improve well-being. This restriction of social media is supported by previous studies (Beardsmore, 2015; Kross et al., 2013; Nesi, 2020; Wilson, 2008; Zuo, 2014) which showed that screen time (social media included) had negative effects on children's well-being. Granic and colleagues (2020) state that the risks versus the benefits of screen time on well-being are not clear since these studies largely focus only on the correlation between well-being and screen time, leading to atheoretical and oversimplified conclusions. Other studies (Keles et al., 2019; McDool et al., 2020; Orben et al., 2019) have a similar standpoint as Granic and colleagues (2020) and state that there is no to little relation between social media and negative outcomes of well-being among children. It is not odd that studies are often contradictory and experience inconsistent findings since the effects of social media and well-being are often bidirectional (Granic et al., 2020; RSPH, 2017). To decrease this inconsistency in social media literacy – and raise awareness about the effect of social media on the well-being of children – scientists should collaborate more in the development of digital devices. When this collaboration is implemented in society it could lead to less irrelevancy among caregivers, educators, and policymakers to the next generation of children. Therefore, caregivers, educators, and policymakers have to stop limiting themselves to simple evaluations of screen time and stop focusing solely on the negative effects of social media.

Currently, a significant portion of children's social and personal identity development takes place on social media. Social media have opened up new ways of learning, innovating, and developing creativity. Especially among children, as they adapt to these technologies more easily than any other generation (McDool et al., 2016). Children are always in an 'on' state checking their feeds, receiving, and posting messages and updates (Granic et al., 2020).

Since there is never a pause of social media there has been a transformation in the way of communicating and interacting with one another in this generation.

Children's sensitivity to social media effects varies depending on their gender, age, how realistic they think the media is and how much they identify with the people on screen (Orben et al., 2019). Communion needs play a role in this sensitivity to social media since this form of identity development can have a positive or negative effect on their well-being. Communion needs involve belonging to a cohesive community, caring for others, being cared for, and emotional attachment (Ryan & Deci, 2000). One effect of social media linked to communion needs can positively affect a child (e.g., increase of social capital, finding like-minded individuals), whilst the same effect could negatively affect another child (e.g., social comparison) or not affect them at all (Van der Wal et al., 2023). Multiple studies (Alloway et al., 2014; Nesi, 2020; Zuo, 2014) indicate the risk of social comparison, in which a high use of social media is linked to more repeated comparisons with others. A possible cause for this risk could be the high level of insecurity among children since they often take peer opinions rather seriously. Therefore, children often choose to depict themselves in a favourable light on social media. Some children become affected by this and start making unfavourable comparisons regarding their own achievements, skills, or attractiveness (Nesi, 2020).

Oppositely, the use of social media has been demonstrated to be positively related to increased social capital (Antoci et al., 2012). Social capital is the network of relationships between individuals in the same society. This enables users to form new friendships and strengthen their bonds with existing friends, which could improve children's well-being and thereby reduce social isolation (Keles et al., 2020). Users of social media feel emotionally more supported through their contacts and the increased access to expert health information. This support can lead to more awareness about well-being among children (RSPH, 2017). To sum up, social media are not all good or all bad, but more or less beneficial or detrimental depending on the child and their circumstances. To create a safe hybrid reality for children, it is important to educate them about the nature of social media and its potential effects. This could be accomplished through knowledge translation.

2.1 Knowledge translation

Knowledge translation refers to the process of turning research-based information into practical applications in various real-world environments and circumstances. For instance, knowledge translation in the form of the arts is becoming increasingly common in scientific research (Apostolellis & Daradoumis, 2010). One approach to help increase children's

awareness of the possible effects of social media is to teach them through the educational system, as children spend a lot of time in school. However, only providing in-class learning in the educational system is often described by children and experts as slow, boring, and out of touch (Apostolellis & Daradoumis, 2010). Due to this, a variety of studies have strongly advocated changing the manner in which learners acquire knowledge by using new, innovative techniques outside of the classroom (Giliberti et al., 2019). Children tend to be more interested in environments where play, exploration, and active participation are common, leading to more open discussions, problem-solving, and learning (Apostolellis & Daradoumis, 2010). Children come to understand their surroundings via experience, investigation, active participation, and social contact (Giliberti et al., 2019). This vision is named constructionism, a widely accepted theory of learning. According to Papert (1993), constructionism is based on the concept that children will learn best by independently discovering (or "fishing") the specific knowledge they require. Therefore, improving learning within informal learning environments such as workplaces, museums and even at home could increase children's learning and awareness levels on a certain topic. These environments are (socially) experiential and develop a setting where audiences get to explore, which is useful for engaging audiences in real-world activities (Apostolellis & Daradoumis, 2010). Unlike school classrooms, these environments retain their contextual qualities, either physical or online, which could increase learning.

Finding the motivation to truly want to learn starts with and has a strong connection to the real environment in which a child lives (Giliberti et al., 2019). The digital age gives children countless opportunities, especially to learn, which has and must become a lifelong practice. In reality, children's knowledge, which is essential in gaining awareness, arises from their engagement with the social and emotional realities that are the basis of learning (Tiberghien et al., 1997). In addition, critical thinking about one's own behaviour is crucial in order to raise awareness. According to Apostolellis and Daradoumis (2010), learning can be improved by the participation of more knowledgeable co-participants or guides (e.g., performers, actors, museum educators, etc.). Guides provide additional information, assistance, and contribute to an effortless and trouble-free learning experience. Employing a guide—who might take the form of an avatar in a virtual gaming environment or as an actor who outlines an imaginary world on a theatre stage—could serve to clear up confusion. Therefore, the arts can serve as a useful knowledge translation tool, conveying the effects of social media.

When wanting to translate knowledge having a narrative can be very beneficial. A narrative is a detailed written or told story expressed in various art forms (e.g., poetry, song, dance, theatre). The narrative is a crucial component in conveying (factual) knowledge, especially in childhood, since it can explain a point in a clear way (Apostolellis & Daradoumis, 2010). Especially for a topic like social media that is vague and can have a different meaning for each individual, it can be helpful to create a narrative that covers social media through clear examples. Oss and Brunello (2017) developed the concept of "Augmented lectures", which were narrativized lectures presented in theatrical environments. These lectures were given by professional actors with the aim of enabling people to consider and engage with a particular disciplinary topic by providing them with a narrative. Through educating people via augmented lectures difficult scientific topics could become more tangible and understandable (Oss & Brunello, 2017), which shows possibilities for educating children about the difficult topic of social media. In addition, by presenting in a theatre, other senses were stimulated by the audience, often encouraging critical thinking and diverse learning, which is less likely in a classroom setting (Giliberti et al., 2019).

2.2 Theatre

Theatre is suited to sharing diverse perspectives. It could characterize abstract concepts (e.g., racism, stigmas) and depict relationships between individuals and the larger cultural context (Leavy, 2015). Therefore, intangible, complex issues can become tangible through the emotional, interactional, and participatory nature that theatre has on its audiences (O'Grady, 2020). Next to the classic theatre shows where performers entertain their audiences, there is an increase in audience interactivity taking place in more modern theatres where performers and audiences merge more together and react to one another. The use of interactive theatrical programs offers a special approach for children and caregivers to "rehearse" reality and evaluate the subject expressed on stage (Rossiter et al., 2007). Theatre makes the unseen visible so it can be examined critically. Audience members can engage effectively and cognitively on the topic, and furthermore, it opens new avenues for disseminating research results (Nichols et al., 2022).

2.3 Research-based Theatre

During the last decades, researchers have grown interested in theatre as a unique means of analyzing data and transferring findings (Rossiter et al., 2007). Studies that combine research and research materials with theatre are called Research-based Theatre (RbT). Engaging

audiences through a theatrical lens is a powerful method to promote social change and spark discussions. This approach enables the exploration of complex themes, which has a lot of potential for social media interventions. Besides, it combines the real world with theatre, making the audience part of the narrative (Nichols et al., 2022). Previous studies (Kontos et al., 2018; Nichols et al., 2022; Rosenbaum et al., 2005; Stuttaford et al., 2006) have integrated their research foundations with theatre to determine its effects on audience awareness and improved knowledge. These studies stated that RbT can be a useful knowledge translation intervention that promotes critical reflection, communicates research findings in an emotional and embodied manner, and creates opportunities for new ways of thinking.

Since RbT communicates topics in an embodied manner it is often unnecessary for theatre audiences to receive an explanation about the show before visiting. Nevertheless, at times, the world presented to the audience during the show can seem difficult to access. Schneider and colleagues (2014) provided their audience with background knowledge about the world they would enter for their RbT show *Inside Out of Mind*. The audience responded that the show was a powerful instrument for reflection and had the capacity to alter hearts as well as minds, yet without the background knowledge many audience members explained that the experience would be unreachable, making the show inexplicit and not purposeful (Schneider et al., 2014). Validating that in some cases it could be beneficial to give some knowledge before the show to the audience.

Besides pre-show knowledge, post-show knowledge could also help to improve awareness by providing follow-up steps after watching an RbT show. Tuijnman and colleagues (2019) concluded that regular follow-up conversations needed to be scheduled to perchance improve raising awareness. Besides multiple interactions, the study by Apostolellis and Daradoumis (2010) investigated the learning benefit of integrating audience interaction with gaming environments in dome theatres among children. They stated that the experience and knowledge that was gathered throughout the children's visit to the dome theatres needed to be applied in different contexts (e.g., school, home, daily life) in order to be effective. This indicates that children need multiple interactions in different contexts in order to gain knowledge effectively from RbT shows.

RbT can assist audiences to examine their own opinions critically and artistically on how they feel and think (Gray et al., 2020). For instance, RbT shows *Contact!Unload* by Nichols and colleagues (2022) and *Inside Out of Mind* by Schneider and colleagues (2020) gave insights into difficult topics of veterans' homecoming and the stigma of dementia. Here,

the audiences expressed emotional stimulation, engagement with the topic, a transition and improvement in awareness, knowledge, and understanding post-performance.

Six months after experiencing *Contact!Unload*, the improvements in awareness, knowledge and understanding were still ongoing, while other RbT interventions showed lasting effects up to a year later (Belliveau & Nichols, 2017; Dupuis et al., 2016). RbT is not new in research, though, RbT has not been crafted for children before. Since previous studies revealed positive outcomes over RbT, this study researched the effects of social media on children by raising awareness through a research-based theatre show entitled *PRESS Play.*.

2.4 *PRESS Play.*

PRESS Play. is an interactive show for children that guides them through the wonderful yet risky path of freedom in a virtual world full of unknown algorithms. In current times, social media influences what individuals see and do not see. Therefore, our world appears more and more "makeable". During *PRESS Play.* children will be given the control over decision-making of the show by getting a control knob. With this control knob, children select how the setting on stage evolves and how the narrative develops, which ultimately could lead to a gain of awareness of hidden algorithms within social media. As a result, they come to understand that they may not always be the only ones in control of their online lives and that these algorithms can steer them in a direction they do not always want. That gives individuals a false feeling of control and, more importantly, makes them feel extremely responsible. Those feelings are depicted in *PRESS Play.* through two characters on stage. According to the study by Apostolellis and Daradoumis (2010), the use of innovative technology in theatre creates interactivity which is beneficial for the learning, understanding, and attention span of children. *PRESS Play.* can be described by the term "research-based performance", which is a show based on research except it does not strictly follow the data as a script (Rossiter et al., 2007). This generates more interactivity, increasing the drama and playfulness of the show, which is important in the learning of children (Apostolellis & Daradoumis, 2010). Based on the data from the control knobs, surveys before and after experiencing *PRESS Play.*, and interviews after experiencing *PRESS Play.,* this study will investigate whether children gain awareness of the possible effects of social media.

3. Method

3.1 *PRESS Play.*

PRESS Play. is created to raise awareness about the effects of social media and the digital world. The show was designed on the groundwork of scientific information and focus groups with children. The goal of the focus groups was to get a broad overview of what children already knew and thought about the digital world, including social media, phone use and gaming. The focus groups showed that children spend a lot of time on different social media platforms, which in some cases led to overstimulation and conflicts with their parents. Many participants explained that if they received a notification that they had to immediately click on it to experience peace again. What stood out about the focus groups was the broad knowledge most participants already had about algorithms and how they understood that online advertisements are personalized to their interests. Based on these insights *PRESS Play.* was designed.

Figure 1
Performers on stage of PRESS Play.

The two performers (Figure 1) in *PRESS Play.* played within a self-created world full of algorithms, which they thought they had control over when that was not always the case. The dangers within the created world on stage – that depicted the digital world – were designed to show children what impact the effects of social media can have on them.

Technology (Figure 2) – in the form of a control knob – was the instrument used during *PRESS Play.* to reduce the distance and increase the interactivity between the audience and the performers. This element was designed to give the children the feeling of being in control over the show and is similar to the experience of playing a game. This linked back to the world the performers created on stage and the control they thought they had. Before the show, the audience received their control knob and based on the events that happened on stage, they got to decide what the performers were doing, giving them the power to control.

Figure 2
Interactive technology present at PRESS Play.

3.2 Procedure

There were two routes that children could follow to participate in this study. The first route was through attending *PRESS Play.* during the weekend shows. Oftentimes, children visited the weekend shows with their parents. During several of these weekend shows, researchers were present to hand over physical surveys to the children at the entrance of the theatre. Participants were asked to fill in a survey before the show (pre-test) and a survey after the show (post-test). Before answering the pre-test, the participants and their parents were verbally asked for consent. Information about the associated risks and benefits of participating in the study was provided and the parents of the children needed to approve for their child to participate. Then, the participants were introduced to the topic, which concerned their experiences with *PRESS Play.* and their social media use. Since this study evolved around children, receiving ethical approval was crucial. The second route was via school shows since many Belgian school classes visited *PRESS Play..* After the show, the children were asked to fill out an online survey which they had to scan via a QR code (school post-test). The participants were similarly introduced to the survey topic as the participants of the first route (weekend show). Furthermore, they were asked to answer statements and questions on their experience with *PRESS Play.* and how they experience and use social media.

Via the first route participants were asked if they were interested in further participation. For pragmatic reasons, it was impossible to include children from the second route to further participate. Specifically, researchers could not attend these shows to hand out hard copies and this study did not want to collect personal information. If the participants of the first route wanted to further participate, they could fill out their parent's email address at the end of the post-test. The participant's parents got an invitation two to three weeks after they visited *PRESS Play.* via an email for an in-depth interview through Microsoft Teams. These online interviews were semi-structured. Open questions and discussion points were prepared beforehand through a topic list, yet we were able to deviate from the pre-set questions to create in-depth discussions on topics that participants brought up. Many participants did not respond to the invitation for the interviews. Therefore, a follow-up survey (follow-up) was created which the participants could fill out instead of the interview.

3.3 Participants

Children who were living in Belgium and visited the theatre show *PRESS Play.* were the target population of this study. The show was in Dutch, therefore the participants needed to understand the Dutch language. In total, 171 children responded, of which 34 filled out an

incomplete or invalid survey. Participants older than the target group were seen as invalid participants. Consequently, the definitive analysis contained 137 participants (*N*=47 from the weekend shows and *N*=90 school shows) in total.

Table 1 shows that the mean age of the participants (weekend shows *N*=47) was 11.3 years old (*SD*= 2.2), with ages ranging from 8 to 15 years old, from the school shows this data is not known. Furthermore, 68% of all participants had their own smartphone, indicating that children already have access to social media at a young age or are in a transition of almost owning a phone and gaining access. After experiencing *PRESS Play*. 78.8% of all participants (*N*=137) stated that they would visit a similar show again. Only a small group did not want to visit a similar show again (7.3%) and some did not know if they wanted to (13.9%). Almost all participants who voted to not visit a similar show or did not know if they would, explained that they did not understand the show or found it boring. Between the age groups there were no differences in whether they wanted to visit a similar show again or not.

Table 1
Demographic characteristics

		N (%)	*M* (SD)
Age	*8-10*	*19 (40.4%)*	
	11-13	*21 (44.7%)*	
	14-16	*7 (14.9%)*	
	Total	*47 (100%)*	*11.3 (2.2)*
Smartphone	*Yes*	*32 (68.1%)*	
	No	*15 (31.9%)*	
	Total	*47 (100%)*	*1.3 (0.5)*
Visit again	*Yes*	*108 (78.8%)*	
	No	*10 (7.3%)*	
	Don't know	*19 (13.9%)*	
	Total	*137 (100%)*	*1.3 (0.6)*

3.4 Measures

The measurement of awareness was central in this study, consisting of analyzing transformations in knowledge and understanding of the effects of social media. Three data collection methods were designed in this study: surveys, interviews, and control knobs. The measurement of the control knobs showed which choices the audience members made during the show and how they reflect on their own behaviour. The ideal plan for this study was to collect quantitative data at different moments in time and afterwards have qualitative in-depth interviews. According to Nichols and colleagues (2022), this would give the best result to

answer a research question regarding the effect of a RbT-show. Measuring the knowledge of participants about the effects of social media was crucial in order to see if there was an increase in knowledge and thus in awareness after experiencing *PRESS Play.*. Furthermore, it was crucial to understand how children experienced the instrument RbT and understand how useful it is in gaining awareness among these children.

3.4.1 Pre-and post-test

Awareness was measured over time using two different measurement moments, one before the weekend show (pre-test) and one after the weekend show (post-test). The pre-test provided the baseline measurement to understand how much knowledge the participants had about social media. The post-test had the same measures to notice a difference in their awareness after experiencing *PRESS Play.*. The pre-and post-tests involved four identical statements to accurately measure any changes in awareness – influenced by *PRESS Play.* – among the (N=47) participants. These statements ranged on a five-point Likert scale from totally agree to totally disagree. Both surveys consisted of statements about participants' social media use, their knowledge of what the effects could have on themselves and what control they (think they) have over what they experience on social media (see Appendix A). Example statements were: "I understand what the effects of social media can have on me" and "I am always in control over what I see on social media." The post-test had three additional statements, which consisted of statements about the theatre show. These additional statements similarly consisted of five-point Likert scales: "The show reminded me of my own experience with social media." "After seeing the show, I will use social media differently." and "In the future I want to use social media more."

3.4.2 Interviews

The participants of the pre-and post-test then were asked to participate in an in-depth interview. Interviews were designed to understand similarities or differences in the awareness of participants in the long term, yet the response was low. The ideal number of interviews was about fifteen, more than forty participants were contacted, yet only two participants wanted to participate further by conducting the interview. Still, the data from these interviews are included in the study. In both interviews the participants were asked about their experiences with social media, *PRESS Play.*, and if their social media use had changed after experiencing the show. A topic list was created to have a common thread of what questions needed to be asked during the interview (Appendix B). An example question from the interviews was: "Is

your social media use different compared to before the show and can you explain how it is different?" Due to the low response to the interviews, we implemented another online survey – the follow-up – to collect more long-term data.

3.4.3 Follow-up

The follow-up was a continuation of the pre-and post-test. It consisted of the same statements sent to the same participants as the pre-and post-test but examined at a later date. It consisted of some more open questions than the previous surveys to understand their experiences better. Examples of the open questions were: "What do you think was the most important lesson the show tried to explain to you?" "Could you explain the effects social media could have on you (or others)?" The answers to the open questions have been included in the qualitative data analysis. Based on the three measure moments (pre- and post-test, and follow-up) it should have become possible to measure awareness over time. Yet the follow-up had little response (*N*=3), similar to the interviews, resulting in not the ideal measurement process we had hoped for. Nevertheless, analyzing whether the awareness and opinions of the three participants changed over a longer period of time was noteworthy to include in the study (see Appendix C).

3.4.4 School post-test

The school post-test had the same seven statements as the post-test so ultimately the data could be merged together for analysis (see Appendix D). Nonetheless, the school post-test had three additional open questions to gain a deeper understanding of the participant's thoughts on the show: "What do you think was the most important lesson the show tried to explain to you?", "Would you go to a show like this again, and why?", and "If you wouldn't have social media, would you miss it? Explain." The last two questions were asked with yes, no, and I don't know answers with an open end so participants could explain their reasoning. The answers to the open questions have been included in the qualitative data analysis.

3.4.5 Control knob

At the start of *PRESS Play.* the audience members received a control knob (see Figure 2). The control knob had two buttons which the audience members could choose to click on when a statement was posed, or a question was asked during the show. Per show, the audience needed to make 42 choices (see Appendix E). At the beginning of the show, the choices were quite meaningless (e.g., choices of outfit, character, and place to go). But as the performance

progressed, the choices became more nuanced, and the audience had to reflect on their behaviour. All choices were collected from the control knobs and stored in a data set. The answers of the reflective choices were than analyzed through examining differences in the weekend and school shows. Example questions that participants had to answer later in the show were: "Do you pretend to be someone else because you are scared to be yourself?", "Are you always honest when you talk about yourself?", and "When you know something for sure, does this mean that it is true?"

3.5 Data analysis strategy

The quantitative and qualitative data in this study have been combined to provide insights to better understand and ultimately better answer the research question. Therefore, it was important to examine the two data types for convergency, divergency, or similar results. First, this study sought significant differences in awareness through experiencing *PRESS Play.* by examining quantitative results. Afterwards, the qualitative results were compared with the quantitative results to perceive whether the two data types had similar answers.

Qualtrics was used to collect the quantitative data. After collecting the data, it was transferred to SPSS where the data and its variables were analyzed. The pre-test, post-test, and follow-up data got analyzed on differences in awareness of social media over time. Additionally, since the post-test and the school post-test were measured at the same time (directly after experiencing *PRESS Play.*) but had slightly different audiences (children visiting with school vs. children with their parents), this data was also analyzed separately to measure whether there were differences. The data of the control knobs during the school shows and the weekend shows were also analyzed separately to see if there were any differences between the two types of audiences. Analyzing whether children made different choices in their answers surrounded by their parents or by peers could give interesting results.

For the qualitative data, a systematic codebook (Appendix F) was designed to analyze the data based on the Grounded Theory by Wagner and colleagues (1968). The answers that the participants gave in the interviews and on the open questions during the surveys were all brought together. Afterwards, the transcripts got broken down into excerpts and then got grouped into codes. Subsequently, the connections between the codes were linked and created together into the core categories of the study to analyze the similarities between the answers.

4. Results

4.1 Validity and Reliability

To measure the validity of this study, a factor analysis was conducted to identify if the constructs that were formed accurately reflect the concept being measured. Table 2 presents the factor analysis of the participants of the pre-and post-test from the weekend shows. Table 3 presents the factor analysis of the school post-test from the school shows. We expected to find two constructs (social media and theatre) in both tables, but the factor analysis displayed that there were three. The third construct was identified as phone control, which first was included in the social media construct.

Based on this factor analysis, we saw that understanding and controlling social media and controlling phone use were different constructs and therefore phone control was created as a standalone construct. In the pre-and post-test phone control only had one statement, whereas in the school post-test phone control had two statements. This showed that the two constructs overlapped and were thus closely related. The statement "I have control over what I see on social media." in the school post-test scored higher on phone control instead of social media which should have occurred. All the questions concerning theatre have high scores at the correct construct making them valid.

Table 2

Factor analysis of the pre- and post-test

	Component		
	Social media	Phone control	Theatre
Pre_socmed_1 I like social media	.73		
Post_socmed_1 I like social media	.62		
Pre_socmed_2 I have control over what I see on social media	.68		
Post_socmed_2 I have control over what I see on social media	.68		
Pre_socmed_3 I understand the effects social media can have on me	.77		
Post_socmed_3 I understand the effects social media can have on me	.59		
Post_socmed_5 In the future I want to use social media more	.76		
Pre_socmed_4 I have control over when I put my phone away		.93	
Post_socmed_4 I have control over when I put my phone away		.63	
Post_theatre_1 The show reminded me on my own experience with social media			.83
Post_theatre_2 After seeing the show I will use social media different			.50

Table 3

Factor analysis of the school post-test

	Component		
	Social media	Phone control	Theatre
Schoolpost_socmed_1 I like social media	.76		
Schoolpost_socmed_3 I understand the effects social media can have on me	.70		
Schoolpost_socmed_5 In the future I want to use social media more	.50		
Schoolpost_socmed_2 I have control over what I see on social media		.67	
Schoolpost_socmed_4 I have control over when I put my phone away		.48	
Schoolpost_theatre_1 The show reminded me on my own experience with social media			.84
Schoolpost_theatre_2 After seeing the show I will use social media different			.79

The difference between Table 2 and Table 3 is that the construct phone control in the pre-and post-test has one item whereas the school post-test has two items. With the use of Cronbach's Alpha, we measured whether the constructs and the items within each construct were reliable in the pre-test, post-test, and school post-test (Appendix G). To speak of a relatively high reliable construct, Cronbach's Alpha must be .70 or higher. Taber (2017) described Alpha values as slightly low (0.68-0.69), reasonable (0.65-0.67), moderate (0.61-0.64), and everything below 0.55 as not satisfactory. We measured what the reliability would be if we deleted the statement "I have control over what I see on social media" in the school post-test from the construct social media. This led to a drop from .62 to .57, which did not improve the Cronbach's Alpha, so we kept the item within the social media construct. Besides, we want to have the same measurements between the pre-and post-test and the school post-test. Therefore, the construct phone control consisted of one statement in all tests. Making the construct phone control not testable on its reliability. The statement "In the future I want to use social media more" in the post-test was removed from the analysis between the pre-test and the post-test since the pre-test did not have this statement. By deleting the item, the Alpha value of the construct social media in the post-test will go down from .69 to .58 which is not ideal but necessary. For the comparison between the post-test and the school post-test the statement was still included in the analysis.

This study developed new and self-made items (statements), so it is not surprising that the items had slightly lower reliabilities. The Cronbach's Alpha showed that the constructs social media and theatre, within the three different tests, scored between .60 and .70. For this study that is sufficient enough, but the items should get tested better in bigger samples. Social media in the pre-test had a Cronbach's Alpha of .60, in the post-test .69, and in the school

post-test .63. Theatre was not measured in the pre-test, yet in the post-test it had a Cronbach's Alpha of .66 and in the school post-test .62.

4.2 Results over time

Table 4 shows the differences between the pre-test, post-test, follow-up, and school post-test in mean scores on a five-point Likert scale. The follow-up data has been included in the table, however, due to the low response rate (*N*=3), the quantitative results are not being further analyzed. Nevertheless, the qualitative results from the open questions are further analyzed. Both constructs social media and phone control were measured over time by measuring the differences between the same participants in the pre-and post-test. The construct theatre could not be measured over time since participants could not say anything beforehand about the show.

Table 4
Individual scores of the statements of all surveys

	Pre-test			Post-test			Follow-up			School post-test		
	N	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*
Social media	47	3.83	.78	47	3.49	.77	3	4.0	.58	90	3.61	.96
Phone control	47	3.23	1.11	47	3.32	1.02	3	3.0	.0	90	3.54	1.17
Theatre				47	3.03	.99	3	3.67	.58	90	2.56	.98

All mean scores are rated on a five-point Likert scale (1= totally disagree, 5= totally agree)

To see whether awareness was gained through *PRESS Play.* paired sample *t*-tests were executed on both constructs social media and phone control (Table 5). A paired sample *t*-test showed that there was a significant difference between social media before *PRESS Play.* (M_{pre} = 3.83, *SD* = .78) and social media after *PRESS Play.* (M_{post} = 3.49, *SD* = .77; $t(46)$ = 3.07, *p* = .002). This could mean that after experiencing *PRESS Play.* children disliked social media more, that they had less control over social media, or that they understood the effects better than afterwards. For the construct phone control, a similar paired sample *t*-test was executed. There was no significant difference between the control children had over their phones before *PRESS Play.* (M_{pre} = 3.23, *SD* = 1.11) and after *PRESS Play.* (M_{post} = 3.32, *SD* = 1.02; $t(46)$ = -.63, *p* = .27).

Table 5
Paired sample t-tests between the constructs of the pre- and post-test

	Measurement moment	N	M	SD	t	df	p
Social media	Pre-test	47	3.83	.78	3.07	46	.002
	Post-test	47	3.49	.77			
Phone control	Pre-test	47	3.23	1.11	-.63	46	.271
	Post-test	47	3.32	1.02			

Since there was a significant decrease in social media after experiencing *PRESS Play.*, we will look at the individual items of the construct through paired sample *t*-tests to understand what led to this decrease (Table 6). The paired sample *t*-test of the statement "I like social media" showed that there was a significant difference between the liking of social media before *PRESS Play.* ($M_{pre} = 4.09$, $SD = 1.06$) and after *PRESS Play.* ($M_{post} = 3.78$, $SD = 1.11$; $t(46) = 2.62$, $p = .006$). The children liked social media more before than directly after *PRESS Play.*. Likewise, the paired sample *t*-test of the statement "I always have the control over what I see on social media" showed that there was a significant difference between always having control over what children see on social media before *PRESS Play.* ($M_{pre} = 3.64$, $SD = .99$) and after the show ($M_{post} = 2.85$, $SD = 1.06$; $t(46) = 4.38$, $p < .001$). The thought of always having control over what children see on social media before *PRESS Play.* scored higher than directly after the show. The paired sample *t*-test of statement "I understand the effects that social media can have on me" showed that there was no significant difference between understanding the effects that social media can have on themselves before *PRESS Play.* ($M_{pre} = 3.77$, $SD = 1.11$) and after *PRESS Play.* ($M_{post} = 3.85$, $SD = .96$; $t(46) = -.48$, $p = .316$).

Table 6
Paired sample t-tests between the items of social media of the pre- and post-test

	Version	N	M	SD	t	df	P
SM_1: I like social media	Pre-test	47	4.09	1.06	2.62	46	.006
	Post-test	47	3.78	1.11			
SM_2: I always have the control over what I see on social media	Pre-test	47	3.64	.99	4.38	46	<.001
	Post-test	47	2.85	1.06			
SM_3: I understand the effects that social media can have on me	Pre-test	47	3.77	1.11	-.48	46	.316
	Post-test	47	3.85	.96			

4.3 Results post-tests

To validate whether differences were measured after *PRESS Play.* on both the school shows and the weekend shows, independent sample *t*-tests were conducted (Table 7). Consequently, there was a significant difference between the post-test (M^a= 3.03, *SD*= .99) and the school post-test regarding theatre influences (M^b= 2.56, *SD*= .98; $t(135) = 2.69$, $p > .001$). This result suggested that the children of the school post-test reported lower theatre scores than the children of the post-test. This was remarkable since we did not expect there to be any significant differences between the two groups.

There was no significant difference between the children of the post-test (M^a= 3.49, *SD*= .77) and the school post-test (M^b= 3.61, *SD*= .96; $t(135) = -.73$, $p = .234$) regarding the awareness of social media. These results suggested that the children of the school post-test did not rapport a higher or lower evaluation in terms of social media awareness than the post-test. Table 7 similarly indicated that there was no significant difference between the post-test (M^a= 3.32, *SD*= 1.02) and the school post-test regarding phone control (M^b= 3.54, *SD*= 1.17; $t(130) = -1.09$, $p = .139$). These results suggested that the children of the school post-test did not have any more or less control over their phones than the children in the post-test. Since we assumed that there would be no differences between the two measurement groups it was good to perceive no significant differences between the social media and phone control constructs.

Table 7
Independent sample T-test post-tests

	Version	*N*	*M*	*SD*	*t*	df	*p*
Social media	Post-test	47	3.49[a]	.77	-.73	135	.234
	School post-test	90	3.61[b]	.96			
Phone control	Post-test	47	3.32[a]	1.02	-1.09	130	.139
	School post-test	90	3.54[b]	1.17			
Theatre	Post-test	47	3.03[a]	.99	2.69	135	.008
	School post-test	90	2.56[b]	.98			

4.4 Qualitative data

Our qualitative results, summarized in the systematic codebook (Appendix E), give a better understanding of what participants really thought of *PRESS Play.* and what the show meant to them. If we look back at Table 1 we come to a better understanding of what participants thought of *PRESS Play.*. There were 10 participants (7.3%) who would not go to a similar show as *PRESS Play.* again. They often explained that the show was boring or weird: "*I*

didn't understand the message of the show, I thought it was quite weird." The participants who voted that they did not know if they would visit a similar show again (13.9%) often explained that they similarly did not understand the show or simply did not know if they would visit again: *"I don't know because I don't really like theatre, but this was nice and exciting."* However, most participants enjoyed *PRESS Play.* (78.8%). 'Nice' and 'funny' were frequently mentioned in comments, showing that participants were pleased with the way the show was created. The use of the control knob that gave the audience control was particularly appreciated by many participants: *"You learn a lot and you can decide for yourself what will happen [on stage]." "Very nice show, I liked having the control."*

4.4.1 Effects *PRESS Play.*

Overall, the written and spoken feedback supported the quantitative evidence that there was a decrease in social media control and an increase in understanding the effects of social media after experiencing the show. The key takeaway messages reflected a more nuanced, not simply positive, view of social media and its effects than before *PRESS Play.*. Often, the children who visited *PRESS Play.* already had some knowledge about the effects of social media. Still, most participants explained that they learned something from the show. After the show, participants had a better understanding of what can be harmful to them. Some examples of participants' explanations: *"PRESS Play. showed me that social media makes you believe that the world thinks the way you think so you can hide in a bubble." "Very interesting to reflect [after the show] on social media and how I use it."* Participants not only perceived social media to be more nuanced, but after the show they also understood that they themselves need to make their own decisions regarding what they can and cannot do on social media: *"You should not always trust everyone" "Things can be misleading, and you cannot have everything that you want, so you need to be careful."*

4.4.2 Knowledge and Understanding

Parents who visited *PRESS Play.* with their children often wanted to teach their children about the effects of social media and were cautious with their children's social media use. Furthermore, our interview results indicated that one school which visited *PRESS Play.* dedicated an educational week to social media. Suggesting that the subject is sensitive and that some educational institutes find it important that children learn the effects of social media. One positive outcome of the show was learning. Some participants explained that the show made them realize that their life patterns needed to be adjusted. *PRESS Play.* created

this realization moment for them which some participants explained as: *"No more TikTok and Fortnite." "The show was funny, and it changed a part of my life."*

4.4.3 Distractions and Communication

That children use social media exceptionally often and perceive it as a major part of their lives is also apparent from the interviews and the surveys' open questions in this study. Many participants explained that social media provides them with information, memes, and (funny) videos and gives them access to contact their friends. Consequently, they explained that they did not know what they needed to do when they were bored if social media were not there: *"I would be bored if I didn't have social media, it's half my life." "Because there is nothing else to do."* Participants often explained that they did not experience any negative effects from their social media use. Most of the participants felt like they were in control over their usage, but all knew some friends or siblings who overused social media.

4.4.4 Behaviour and Use

PRESS Play. created insights into understanding the effects of social media. However, that did not mean that participants changed their behaviour, some participants explained: *"I don't use my phone less now. I really like social media and online chatting with my friends. After the show that didn't change, but I have thought about if I have control over social media. Now I know that I shouldn't talk to everybody and first think who someone can be."* This implies that children know quite well how they behave on social media and already reflect on whether their behaviour is good or not. To get a better insight into what children learned from *PRESS Play.* and what it is like to experience the show, the theatre group PlayField and Kopergietery created a one-minute film about the show's impact on children. This includes comments and judgements from children on their experience with *PRESS Play.*: https://www.facebook.com/watch/?v=1360461134422597.

4.5 Control knob

In total, *PRESS Play.* audiences answered 42 different questions, clicking the control knobs more than 330,000 times during the show. The data of the control knobs of 19 shows were stored, including 7 shows in Germany and 12 in Belgium (of which one was a weekend show, and the others were school shows). The data from the 7 shows in Germany have not been further analyzed as the focus is on the Belgian children and there were no big differences between the children from both countries. Furthermore, more shows were performed in

Belgium yet the data of these were not stored. Table 8 presents the statistical numbers of the control knob responses given by the audiences and the differences between the shows (weekend versus school). The children who went to the weekend shows often came with their parents, who also got a control knob. Therefore, the weekend show results should be interpreted with caution. Table 8 only displays 9 of the 42 questions which were asked during the show. These 9 questions are reflective and give the best indication of what children think about themselves and indicate a part of their online behaviour.

Table 8 suggests that the control knob answers between school and weekend shows were relatively similar. Most choices in yes or no were in a ten per cent range from each other between the school and weekend shows except for questions D1, D5, and D9. With the use of Chi-Square tests (Table 9), we can conclude that those three questions indeed had significant differences in answers between the weekend shows and the school shows. The children who visited the weekend shows answered significantly more yes (92.6%) on the question of whether they were doubting themselves than the children in the school shows (76%), $\chi^2(1, N = 936) = 16.53$, $p < .001$. Question D5 specified whether the audiences always followed the group. Here, the children in the weekend shows followed the group significantly less (8.9%) than the children of the school shows (32.2%), $\chi^2(1, N = 1076) = 37.62$, $p < .001$. At question D9 the children of the weekend shows (66.9%) answered significantly more yes whether the world (theatre stage) was real than the children of the school shows (47.6%).

Not only questions D1, D5, and D9 turned out to be significantly different between the weekend and school shows. The Chi-Square tests explained that there was also a significant difference between the shows in question D8. At D8 the question: '*Do you choose who you really are?',* was answered significantly more with yes in the weekend shows (55.6%) than in the school shows (47.5%), $\chi^2(1, N = 1084) = 8.64$, $p = .003$. The other questions (D2, D3, D4, D6, D7) did not have significant differences in their answers, meaning that the children in the weekend shows answered similarly on these questions as the children in the school shows.

Table 8
Control knobs data

	School shows			Weekend shows			Total		
	Yes	No	Total (*N*)	Yes	No	Total (*N*)	Yes	No	Total (*N*)
D1: Do you doubt yourself sometimes?	872 (76%)	275 (24%)	1147	112 (92.6%)	9 (7.4%)	121	984 (77.6%)	284 (22.4%)	1268
D2: Do you pretend to be someone else because you are scared to be yourself?	823 (60.2%)	543 (39.8%)	1366	70 (55.6%)	56 (44.4%)	126	893 (59.9%)	599 (40.1%)	1492
D3: Are you always honest when you talk about someone else?	448 (33.1%)	904 (66.9%)	1352	34 (26.6%)	94 (73.4%)	128	482 (32.6%)	998 (67.4%)	1480
D4: Are you always honest when you talk about yourself?	483 (35.4%)	882 (64.6%)	1365	39 (30.2%)	90 (69.8%)	129	522 (34.9%)	972 (65.1%)	1494
D5: Do you always follow the group?	419 (32.2%)	882 (67.8%)	1301	13 (8.9%)	133 (91.1%)	146	432 (29.9%)	1015 (70.1%)	1447
D6: Do you want to turn everything off sometimes?	1144 (83.6%)	224 (16.4%)	1368	114 (88.4%)	15 (11.6%)	129	1258 (84%)	239 (16%)	1497
D7: When you know something for sure, does this mean that it is true?	478 (36.3%)	840 (63.7%)	1318	35 (28.2%)	89 (71.8%)	124	513 (35.6%)	929 (64.4%)	1442
D8: Do you choose who you really are?	648 (47.5%)	717 (52.5%)	1365	70 (55.6%)	56 (44.4%)	126	718 (48.2%)	773 (51.8%)	1491
D9: Is this world real?	633 (47.6%)	698 (52.4%)	1331	83 (66.9%)	41 (33.1%)	124	716 (49.2%)	739 (50.8%)	1455

Table 9
Chi-Square test of the control knobs

Pearson Chi-Square	Value	df	Significance
D1	16.53	1	<.001
D2	1.95	1	.163
D3	1.63	1	.201
D4	2.51	1	.113
D5	37.62	1	<.001
D6	1.49	1	.223
D7	3.28	1	.070
D8	8.64	1	.003
D9	17.79	1	<.001

5. Discussion

The goal of this study was to investigate whether the RbT show *PRESS Play.* could increase awareness about the effects of social media on children. Our results – based on four different data sources – indicated that the audiences who experienced *PRESS Play.* have gained knowledge and understanding, and thus awareness about social media and its effects. The pre-test versus post-test surveys revealed that there was a significant decrease in the liking of social media amongst children and a decrease in the feeling of being in control over social media after experiencing *PRESS Play..* Our interview and focus group results indicated an extensive knowledge and understanding among children about social media and its effects on themselves and their environment. Despite knowing the negative effects, they could enjoy social media. Our results from the control knobs showed that children often doubt themselves and pretend to be someone else as they are scared to be themselves, indicating that children often experience insecurities about themselves.

PRESS Play. created a moment of realization for a group of children about previous online interactions where they may not have had full control over their experiences. This resulted in a significantly lower thought of being in control after the show than before the show. Contradictory, the control of children's phone use over time – that was measured between the pre-test and the post-test – did not change through experiencing *PRESS Play..* A possible reason for this contradictory result was that our sample size (N=137) was too small. Making it unable to determine whether the decrease in control over social media was merely a coincidence or whether there was indeed a distinction between social media control and smartphone control (Moua et al., 2020). *PRESS Play.* was designed to give children insights into how easy it can be to lose control over the digital world including social media. According to the study by O'Grady (2020), the participatory nature of theatre could lead to a more nuanced mindset about complex social issues, which ultimately allows these children to appreciate the benefits of social media more. Children reported that they learned they should not trust everyone online, that things can be misleading, and that they should not pretend to be someone else. This indicates that a group of children understands the negative side that social media can bring and became more aware of their control online.

It is often expected – by caregivers, educators, and researchers – that children have little knowledge and skills about the effects of social media. According to other studies (Granic et al., 2020; Keles et al., 2020; Nesi, 2020) and our results, it appears that they know much more. Our results revealed that most children already possessed some or even a broad set of knowledge about social media and its effects. A group of children did not care about the

consequences of social media, while another group of children did not understand the consequences for themselves. Children who visited the weekend shows were probably more aware of the effects of social media than their peers, which could have influenced the outcome of our results. Namely, children from highly educated parents often have more openness to theatre than lower educated parents, resulting in them visiting theatres relatively more often (Schippers, 2016). In addition, children from the school shows were obliged to visit *PRESS Play.*, while children from the weekend shows possibly visited the show in consultation with their parents. Our interview results indicated that parents who visited *PRESS Play.* with their children were often more cautious with social media and wanted to pass that on to their children. Resulting in what could be a biased outcome, showing an incorrect level of awareness about the effects of social media among children. This led to a significant difference in what they thought of theatre yet did not lead to significant differences in social media awareness and phone control between the weekend shows and the school shows.

The already-established knowledge and skills provide children with a good basis to be aware of their social media use. Nevertheless, plenty of participants stated that they knew many peers who overused social media yet they themselves did not experience any dangers or problems with their social media use. This made us speculate that children lack some level of critical self-reflection about their online activities. Self-reflection is fundamental to being aware of the influence that social media has on themselves. Therefore, guidance is important for children in their early adolescence. Once they reach mid-adolescence children want to discover more independently since that is the phase of extreme self-exploration, involving the development of their own perspectives (Granic et al., 2020). Often, children experience low freedom or get restricted from using social media, which can lead to all kinds of frustration. Giving children some freedom, in limited size, to explore and experience social media can certainly benefit their development later in life. By providing freedom to experience, like watching *PRESS Play.* or exploring social media, children gain a better understanding of themselves (Papert, 1993). The combination of facts and drama within *PRESS Play*. led children to look at their behaviour and to reflect more on the way they use social media. Therefore, our results align with previous research (Dupuis et al., 2016: Nichols et al., 2022) which similarly suggests that RbT can be an effective knowledge translation intervention that provides entrances for innovative ways of thinking and sparks critical reflections.

There are studies (Alloway et al., 2014; McDool et al., 2016; Nesi, 2020; Zuo, 2014) that stated that social media needs to be limited during childhood to help improve children's

well-being. We believe that each child uses social media for different reasons, spends different amounts of time online, and reacts differently to sensitive content they get confronted with (e.g., animal cruelty, blood, racism, nudity). This makes it therefore difficult to conclude which positive and negative effects occur on children. Children will keep using social media, so trying to keep them completely away from it is an impossible task. We do not want to encourage children to use social media, especially not to overuse it, as social media can negatively affect children's lives. However, our recommendation is to teach children how to use social media safely and innovatively by giving them clear rules and guidelines. Besides, children should explore the effects of social media, for example by visiting *PRESS Play.* or like-minded educational initiatives, as this can benefit their overall development and well-being. Consequently, the discussion will be opened in a more positive way than is often done at the moment. Children get tired of hearing continuous warnings and lessons from their caregivers, educators, and policymakers about the dangers that social media entails (Vink & Doubli, 2017). Often educators, caregivers, and policymakers focus exclusively on the negative effects of social media and limit themselves to simple evaluations of screen time (Granic et al., 2020). Consequently, they risk losing relevance to the next generation of children.

5.1 Limitations and Recommendations

There are four shortcomings in this study that could have influenced the outcome of this study. Firstly, since *PRESS Play.* was only a one-time event it is debatable whether the show was extensive enough for children to benefit from it. It is however unclear whether subsequent events are necessary to make children aware of the effects of social media, as our study did not focus on this issue. If the goal with knowledge translation is to give pure factual information to the audience, RbT is perchance not the best tool. For RbT to be effective, the experience and knowledge gathered during the show should be applied in different contexts (Apostolellis & Daradoumis, 2010), and regular follow-up conversations should be scheduled (Tuijnman et al., 2019). Therefore, a recommendation for future research is to include a second interaction after the RbT show since this could open discussions about social media and its effects. Allowing children to contextualize the knowledge acquired in *PRESS Play.* and letting them relive their experience will foster discussion in other environments which could benefit their awareness (Apostolellis & Daradoumis, 2010). Therefore, we argue that *PRESS Play.* can function as a starting point from which children can discover for themselves

what social media means to them. Yet for future RbT studies, a second feedback session could further benefit the effect of the show.

Our results indicated that children occasionally found *PRESS Play.* vague or did not understand what the world the actors depicted was supposed to convey. There were no differences in the results between the different age groups about finding the show vague or not. However, it is likely that younger children (i.e., 8 to 10 years old) who are in the process of transitioning from no smartphone to their first smartphone, may have found the show more often unclear. This is because they are less likely to relate to the situations that were performed since they are overall less experienced with social media than children a few years older. Therefore, the second shortcoming this study had could be the lack of background knowledge children got before entering *PRESS Play.*. According to the participants of the interview, the pre-test introduction explained how *PRESS Play.* portrayed the digital world. However, the pre-test was rarely held, leading to low background knowledge about the show before entering. Oppositely, Schneider and colleagues (2014) did provide their RbT audience with background knowledge, leading to higher accessibility. Our recommendation for future RbT studies is that they should decide whether to include background knowledge for their audiences. Some test shows where the target group is included could gain an understanding of whether the message of the RbT show is clear. If not, background knowledge where the audience gets explained what they can expect from the show could be provided. Therefore, more extensive cooperation between researchers and theatre-makers could be needed. This limitation has not been fed back to the theatre-makers, leading to fewer improvements to the show. A more intense cooperation between researchers and theatre-makers could have resolved certain ambiguities some children encountered during *PRESS Play.* and could have further increased social media awareness.

In order to let children visit *PRESS Play.* and/or like-minded educational initiatives that provide information about the effects of social media, Belgian (and Dutch) policy must stimulate opportunities that all schools, and thus all children, grant access. Providing this opportunity raises children's awareness about the possible effects of social media on an educational as well as personal level. We recommend *PRESS Play.* as an eye-opener and discussion starter. A second interaction after the show could lead to a deeper understanding of the knowledge and awareness gathered by *PRESS Play.*. To benefit the whole generation of children, it should be conducted as an excursion with or to schools. To achieve this, subsidies must be given to the cultural section, educational-focused initiatives in particular. If *PRESS Play.* gets offered as a paid show (like the weekend shows), a large proportion of children

would not come into contact with the show, with the exception of children of highly educated parents. In general, parents with a higher education make more cultural trips than parents with a lower education (Schippers, 2016).

The third shortcoming was that the control knob data collected at the weekend shows included not only children but also caregivers who were part of the audience. The control knob results indicated that on five of the nine questions, children from the weekend shows and the school shows gave no significant differences. There were significant differences on four questions, meaning that there were differences between the audiences. One possible reason for this disparity is that in the weekend shows parents also were in control over the show. It could be that their answers differed from the answers from the children, or it could be that children gave different answers surrounded by their parents than by their peers. If future RbT studies want to improve the reliability of their study all audience members should be excluded from participating except for the target group.

The fourth shortcoming of this study was the lack of qualitative in-depth measurements (N=2) and measurements in the long term (follow-up) (N=3). In smaller samples, it is more likely that sampling bias occurs, which can lead to inaccurate or distorted conclusions about the target group (Moua et al., 2020). Since the follow-up survey had a small sample size, the quantitative data was excluded from the results, leading to no long-term insights *PRESS Play.* had about awareness of the possible effects of social media on children. This makes it debatable whether the methods used in this study were the most appropriate, they did however resolve the necessary answers. Therefore, we recommend future RbT studies not exclude measurement methods before considering each measurement tool. Besides, future RbT studies should consider how the target group gets approached to participate in a certain measurement method since participating can often be seen as too effortful, time-consuming, and energy-draining (Rubin & Rubin, 2012). The children who were approached via e-mail did not feel the urge to participate, so it is questionable whether the online approach was interesting enough. The reasons for not participating are endless, making it impossible to say why children did not take part. Imaginably, the online interviews could have been too scary or strenuous, making the step to participate too big. The invitation could have been more original, rewarding, or arousing to increase children's excitement for participating. Therefore, our recommendation for future studies is to make participating more personal and inclusive.

5.2 Conclusion

There are differing beliefs in the social media literature regarding the impact of the possible effects of social media on children's well-being. Some researchers believe that the effects of social media negatively affect children's well-being, while other researchers argue that it has socially positive effects or no impact at all. Due to the many different factors (e.g., age, gender, characteristics, time spent online, belief in how realistic the media is, identification with media), there are still more unknowns than knowns in the social media literature about how social media could affect children's well-being. In general, children already have a broad knowledge and awareness of the effects of social media. *PRESS Play.* was developed to help children become more aware of the possible effects social media can have on themselves. Our results showed that *PRESS Play.* reduced the likeability of social media, which is a consequence of the increase in children's understanding that they are not always in control of their online experiences. The aim of this study has been achieved and aligned with previous studies which similarly indicated that RbT could be an effective knowledge translation intervention. However, our results should be interpreted with caution as sample sizes from our study were overall quite small, in particular long-term results.

Through *PRESS Play.,* the practice now shows that children are pleased with, interested in, and able to learn from RbT and the topic of social media and its effects can be explained through RbT in a playful and informative matter. Children found learning about the effects of social media appealing, especially with new technology (control knobs) added to the show. How knowledge about social media gets translated should change from prohibiting to guiding and discovering. Therefore, our recommendation to caregivers, educators, and policymakers is to welcome – through the knowledge of researchers – the digital world and its changing technologies. Consequently, children can then learn to understand the benefits and dangers of the digital world (including social media) instead of being forbidden to use them. Since we do not have long-term results, it is unclear whether the effects of *PRESS Play.* on the children lingered. Therefore, future research might need to create a second interaction moment after the RbT show for more depth and repetition of the acquired knowledge. Overall, *PRESS Play.* could be a useful RbT tool which should be implemented in Belgian school programs to raise awareness of the effects of social media on children, but more research is warranted.

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7. Appendixes

Appendix A
Pre-test and post-test statements

1. I like social media
   o Totally disagree
   o Disagree
   o Average
   o Agree
   o Totally agree

2. I always have the control over what I see on social media
   5-Point Likert scale (Totally disagree to totally agree)

3. I understand the effects that social media can have on me
   5-Point Likert scale (Totally disagree to totally agree)

4. I have control over when I put my phone down
   5-Point Likert scale (Totally disagree to totally agree)

5. If you wouldn't have social media, would you miss it? Explain.
   o Yes, because…
   o No, because…

6. I use social media… (Tick what applies to you, multiple answers possible!)
   o For the funny videos and pictures (1)
   o To be in contact with my friends (2)
   o If I'm bored (3)
   o For inspiration and tips (4)
   o For other stuff, like … (5)

7. Do you have an own phone?
   o Yes
   o No

8. How old are you?
   o …

Only post-test statements from here

9. The play reminded me of my own experience with social media
   5-Point Likert scale (Totally disagree to totally agree)

10. After seeing the play, I will use social media differently
    5-Point Likert scale (Totally disagree to totally agree)

11. Would you visit a similar show again? Why?
    o Yes, because…
    o No, because…
    o I don't know, because…

12. In the future I want to use social media more
    5-Point Likert scale (Totally disagree to totally agree)

Appendix B
Interviews, topic list

Hoofdonderwerp	Vraag	Steekwoorden/doorvraag	Literatuur
Theatershow	Herinner je die grote knop nog bij de voorstelling?	Had je de neiging om die in te drukken?	X
	Zijn er nog dingen die je van de voorstelling kunt herinneren?	Wat denk je wat de belangrijkste boodschap was die de voorstelling over wilde brengen? Deed de wereld die werd uitgebeeld je ergens aan denken? Zo ja, waaraan dan? Zo nee, zeg: dat is ook niet erg en volgende vraag	Mitchell et al. (2006)
	Wat vond je het meest leerzaam aan de voorstelling?	Waarom? Merk je dat je nu dingen anders doet na de voorstelling? Gedraag je je online nu ook anders? (En ook op sociale media?)	Kontos & Naglie (2007), Shapiro & Hunt (2003) and Nichols et al. (2021)
	Met wie ben je naar de voorstelling geweest?	Heb je het na de voorstelling nog met hen er over gehad? Hoe was dat gesprek? Keken jullie hetzelfde naar de voorstelling of hadden jullie een andere mening?	Nichols et al. (2021) Lorenz et al. (2004) Reflecting on aspects of life and the play
Sociale media	Uit de vragenlijst die je had ingevuld zag ik dat je sociale media **gemiddeld leuk** vindt, kan je uitleggen waarom je dat vindt?	Welke sociale media gebruik je? *(Zo niet)* Waarom gebruik je het dan als je het niet leuk vind? *(Zo wel)* Wat maakt sociale media zo leuk? *(Als ze na voorstelling ander antwoord gaven t.o.v. daarvoor)* Wat heeft ervoor gezorgd dat je mening is veranderd over sociale media?	Shapiro & Hunt (2003)
	Tijdens de voorstelling hebben ze het over onzekerheden over hun uiterlijk, dat ze niet weten wie ze zijn en dat ze zich als iemand anders	Ook zeiden ze dat ze soms alles uit willen zetten (wereld afsluiten/sociale media/hun GSM). Wil jij soms ook alles uitzetten? Waarom wel/niet? Weet je welke effecten sociale media op jou hebben?	Nichols et al. (2021) Kontos & Naglie (2007)

	voordoen in hun eigen wereld. Met deze eigen wereld bedoelden ze de onlinewereld zoals op sociale media en in games, wist je dat ze dat hiermee bedoelden?	Heb je hier last van? Hoe merk je dat? Zijn er bijvoorbeeld dingen die je herkende aan jezelf toen de acteurs het hadden over niet weten wie ze zijn of zich anders voordoen dan wie ze zijn?	Mitchell et al. (2006)
Controle	Vind je dat je te veel op sociale media zit?	(Zo ja) Wat zorgt er denk je voor dat je het veel gebruikt? (Zo nee) Hoe zorg je ervoor dat je niet te veel op sociale media zit?	Focusgroepen Shapiro & Hunt (2003)
	(Alleen als ze een GSM hebben) Hebben je ouders afspraken met je gemaakt hoe lang je op je GSM mag zitten per dag?	Ook regels voor sociale media of alleen over je GSM? Vind je dat je zelf kunt bepalen hoe lang je op sociale media zit? Hoezo?	Focusgroepen Shapiro & Hunt (2003)
Games	Speel je ook games?	Zo ja, welke? Op je GSM of ook op andere consols (computer/Playstation/XBOX)? Wat vind je er leuk aan? En wat minder leuk?	X
Sociale media	Als je iets zou kunnen aanpassen aan sociale media, wat zou je dan aanpassen?	Waarom?	X

Appendix C
Follow-up survey statements

1. Have you ever thought of *PRESS Play.* afterwards?
   o Yes, often
   o Yes, sometimes
   o Yes, one time
   o No
   o I don't know

2. What have you remembered of the show?
   …

3. What do you think was the most important lesson the show tried to explain to you?
   …

4. The actors said that they sometimes want to turn everything off, like the world they created, but also social media and their phone. Do you also sometimes want to turn everything off? Explain why you would or wouldn't.
   …

5. After seeing the play, I will use social media differently
   o Totally disagree
   o Disagree
   o Average
   o Agree
   o Totally agree

6. The play reminded me of my own experience with social media
   5-Point Likert scale (Totally disagree to totally agree)

7. I like social media
   5-Point Likert scale (Totally disagree to totally agree)

8. I understand the effects that social media can have on me
   5-Point Likert scale (Totally disagree to totally agree)

9. Could you explain the effects social media can have on you (or on others)?
   …

10. I always have the control over what I see on social media
    5-Point Likert scale (Totally disagree to totally agree)

11. If you wouldn't have social media, would you miss it? Explain.
    o Yes, because…
    o No, because…

12. I have control over when I put my phone down
    5-Point Likert scale (Totally disagree to totally agree)

Appendix D
School post-test survey

1. What do you think was the most important lesson the show tried to explain to you?

1. The play reminded me of my own experience with social media
   - o Totally disagree
   - o Disagree
   - o Average
   - o Agree
   - o Totally agree

2. After seeing the play, I will use social media differently
   5-Point Likert scale (Totally disagree to totally agree)

3. Would you visit a similar show again? Why?
   - o Yes, because…
   - o No, because…
   - o I don't know, because…

4. I like social media
   5-Point Likert scale (Totally disagree to totally agree)

5. I always have the control over what I see on social media
   5-Point Likert scale (Totally disagree to totally agree)

6. I understand the effects that social media can have on me
   5-Point Likert scale (Totally disagree to totally agree)

7. I have control over when I put my phone down
   5-Point Likert scale (Totally disagree to totally agree)

8. If you wouldn't have social media, would you miss it? Explain.
   - o Yes, because…
   - o No, because…

9. In the future I want to use social media more
   5-Point Likert scale (Totally disagree to totally agree)

Appendix E
Control knob choices

1. Do you want control?
2. Who do you want to be here?
3. Long or short?
4. Up or down?
5. Horizontal or vertical?
6. In or out?
7. Did you eat the cookies?
8. Do you want to go further?
9. What do you look for a friend or yourself?
10. Go shopping or go to a shaman?
11. A door or a road?
12. My place or endless horizon?
13. Everything bright or everything soft?
14. Time freeze button or explosion button?
15. Start over or cheer?
16. Follow him or follow her?
17. Who is right?
18. Believe him or not believe him?
19. Who draws the longest straw?
20. Duel or law?
21. Western or Sci-fi?
22. Fight or run?
23. Alone or together?
24. Endless horizon or obstacle course?
25. Always party or everything shines?
26. Photos always good or everybody dressed up?
27. Cheer or applause?
28. Who is right?
29. Undress?
30. […]
31. I sometimes do not find myself pretty or I sometimes do if I am someone else?
32. […]
33. […]
34. Do you doubt yourself sometimes?
35. Do you pretend to be someone else because you are scared to be yourself?
36. Are you always honest when you talk about someone else?
37. Are you always honest when you talk about yourself?
38. Do you always follow the group?
39. Do you want to turn everything off sometimes?
40. When you know something for sure, does this mean that it is true?
41. Do you choose who you really are?
42. Is this world real?

Appendix F
Systematic code book

Sample Responses	Initial Coding	Final Code
• *I cannot live without my phone; I am quite addicted.* • *A long time on my phone and social media can sometimes really get too much for me, then I'm really done with it.* • *Sometimes I want to turn off the offline world since it is sometimes difficult in the real world, therefore I go on my phone.* • *After the show I don't use my mobile less. I really enjoy social media and online chatting with my friends. That hasn't changed after the performance, but I did think about certain things after the performance, especially if I had control over certain things.*	Wanting and phone use	Control
• *If there is a 1-icon in Instagram, I have to click it. Once I have clicked it, it gives a kind of peace again.* • *I sometimes experience when I watch TikTok or something, that it is suddenly much later than I thought. Since the videos are short you lose track of time, this makes me have no control over it.* • *If my mobile is on the side and I don't hear any notifications, I can easily let go. If I do hear notifications, I want to check immediately. Then it is very difficult to let it go.*	Notifications and distractions	Control
• *I would be bored if I didn't have social media, it's half my life.* • *I really like social media; I like to watch videos and play games.* • *I would miss social media since it is the way to continue chatting and talking with my friends after school.* • *Social media allows me to communicate with friends, meet new people, and I can learn a lot from educational accounts.* • *Because there is nothing else to do [then social media].* • *I use it every day, I would miss it and also all the videos.* • *I don't think social media is that important. I can also read books, do sports, and play outside.* • *I don't use social media that often because I prefer not to look at screens too much.*	Distractions and communication	Social media
• *I feel like the causes of social media are cyberbullying, belittling, and suicide.* • *Effects of social media are that you can become addicted to it and that you no longer know the difference between the real and the online world.* • *Some things are false on social media and there are many people who are fake.* • *Social media makes you think in a different way which can lead to depression and other negative things.*	Effects social media and wellbeing	Social media
• *I often see things which I like come back more often on social media. Often, for example, my algorithm is set to clothing since the platforms know that I like to see that.* • *I turned off the notifications on Instagram, so I don't notice when I get a message and I look much less on this app.* • *If I could change anything about social media, it would be to make it less addictive. That there would be more rules, TikTok already has this so that children under 13 cannot use the app. Yet my classmates secretly already use it anyway.* • *You only show the best version of yourself on social media. Sometimes that is a shame, because you often hear that people then start to feel less because they think everyone is so perfect, but I try to think about that a bit myself. My sister has already felt really fat when she really isn't.* • *No more TikTok and Fortnite.* • *It was funny and it changed a part of my life.*	Knowledge and understanding	Awareness
• *You should not always trust everyone, things can be misleading, and you cannot have everything that you want.* • *Everybody has their own opinion, and that opinion is always correct according to them. Everyone wants to be right.* • *People sometimes want you to do things you don't really want to do and not everything is always as fun as it seems.* • *You should not pretend to be someone else on social media, always be yourself.* • *Social media makes you believe that the world thinks the way you think so you can hide in a bubble.* • *Getting it your way is not the same as being right.* • *You are the one who chooses.*	Effects PRESS Play.	Theatre and awareness
• *I don't use my phone less now. I really like social media and online chatting with my friends. After the play that didn't change, but I have thought about if I have the control over social media. Now I know that I shouldn't talk to everybody and first think who someone can be.* • *Social media often decides what you do. You can also play games and watch social media with others, then you can chose together what you do.*	Behaviour and use	Control

Appendix G
Reliability of social media, control, and theatre

	N of items	Cronbach's Alpha	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Pre-test				
Statements of social media a)	3	.60		
Pre_SM_1 I like social media			.41	.48
Pre_SM_2 I always have the control over what I see on social media			.37	.54
Pre_SM_3 I understand the effects that social media can have on me			.43	.46
Statements of phone control b)	1			
Pre_SM_4 I have control over when I put my phone down			x	x
Post-test				
Statements of social media a)	4	.69		
Post_SM_1 I like social media			.46	.63
Post_SM_2 I always have the control over what I see on social media			.43	.65
Post_SM_3 I understand the effects that social media can have on me			.46	.64
Post_SM_5 in the future I want to use social media more			.55	.58
Statements of phone control b)	1			
Post_SM_4 I have control over when I put my phone down			x	x
Statements of theatre c)	2	.66		
Post_theatre_1 The show reminded me of my own experience with social media			.5	x
Post_theatre_2 After seeing the show, I will use social media differently			.5	x
School post-test				
Statements of social media a)	4	.63		
Schoolpost_SM_1 I like social media			.54	.46
Schoolpost_SM_2 I always have the control over what I see on social media			.39	.57
Schoolpost_SM_3 I understand the effects that social media can have on me			.44	.54
Schoolpost_SM_5 in the future I want to use social media more			.28	.65
Statements of phone control b)	1			
Schoolpost_SM_4 I have control over when I put my phone down			x	x
Statements of theatre c)	2	.62		
Schoolpost_theatre_1 The show reminded me of my own experience with social media			.45	x
Schoolpost_theatre_2 After seeing the show, I will use social media differently			.45	x