

Essay

A Black Mirror of Bright Ideas: Could Media Educate towards Positive Creativity?

Simon Majed Ceh ^{1,*} and Izabela Lebuda ^{1,2,*}¹ Institute of Psychology, University of Graz, 8010 Graz, Austria² Institute of Psychology, University of Wrocław, 50-137 Wrocław, Poland

* Correspondence: simon.ceh@uni-graz.at (S.M.C.); izalebuda@gmail.com (I.L.)

† The authors contributed equally to this work.

Abstract: With the media's omnipresence, beneficial and detrimental effects on human behavior—including creativity—are being widely discussed. This essay presents potential benefits of passive and active media use for enhancing creative thinking and behavior. Based on the classic socio-cognitive theory of observational learning and stressing the importance of creative self-beliefs, certain types of media content and activities are highlighted to demonstrate how traditional and modern media can shape positive creativity—contributing to novel and valuable behavior from both individual and social points of view. The discussion proceeds to link media influence with creative skills, creative self-beliefs, and group creativity, emphasizing the necessity of media education and systematic scientific research on the topic.

Keywords: positive creativity; creative self-beliefs; media; internet; observational learning



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Children's and adolescents' media usage is usually claimed to be equal to a passive and unproductive waste of time, e.g., [1]. Fake news, conspiracy theories, and half-truths are considered to either be caused or strengthened by the media, e.g., [2], stressing the importance of debating current and future outlooks for media consumption, especially regarding creativity; cf. [3]. The popular series *Black Mirror* took up on this debate and presented the dystopian vision of a near-future when the media played the leading evil role in deteriorating individual and social identities, and society, in general; see [4]. However, the format itself may contribute positively to the discourse about risks that come together with new socio-technological paradigms [5].

In this paper, we emphasize the framework of observational learning, embedded into theory about creative self-beliefs, to show how developments in traditional media and new forms of media consumption may serve as an informal form of education that facilitates positive creativity—contributing to novel and valuable behavior from both individual and social points of view. In an attempt to showcase this potential, we look at specific media content and activity in digital social environments (e.g., social media; video games; virtual reality) that can enhance creativity development under certain conditions.

1. Media Content and Creative Self-Beliefs

Media consumers are affected by what they consume [6], but often have a false impression of how media consumption has a stronger impact on others as compared to themselves—they are deluded by a self-serving bias, the *third-person effect* [7–9]. Ongoing crises like the COVID-19 pandemic have raised awareness for so-called media echo-chambers—homophily-based communities that strengthen their shared narrative [10–12]. Consequently, what, and how, we consume traditional or more modern forms of participatory media will impact whether it affects us positively or negatively. Similarly, the media serves as a significant but not always reliable source of information about creativity: People whose knowledge about creativity relies mainly on popular sources like TV or social media are more prone to sharing creativity myths—convictions about creativity that

are not supported by scientific research results (e.g., that children are more creative than adults, or that schools have a negative influence on creativity; [13]). We argue that it is a timely problem to analyze the relationship between creativity, media consumption, and participation—looking beyond the (mis)information on creativity conveyed by the media, and highlighting some of the positive effects on people's beliefs about creativity.

Creative self-beliefs play a crucial role in the translation of creative potential to creative behavior [14]. It is an established idea that creativity is an agentic decision [15,16]. Creative tasks, typically ill-defined and lacking clear success criteria, are usually more time-demanding and energy-consuming than more algorithmic activities. To engage in this kind of challenge, a person needs to hold a set of beliefs. One crucial aspect is creative personal identity—the conviction that creativity is an important part of the self, as otherwise it would not be worth investing the effort [17,18]. It should be accompanied by creative self-efficacy, the assumption that a creative task is solvable in general, and the specific person has the means to succeed in doing so [19–21]. To take on the risk of creativity [22,23], a person must believe that the goal is worthwhile and achievable, such that potential obstacles can be overcome. Thus, creative self-beliefs reflect the willingness to engage in creative action and maintain continuous effort, especially when facing difficulties.

Creative self-belief is vital to positive creativity. It plays a crucial role in the effective and satisfying fulfilment of professional and private roles such as parenting or romantic relationships [24,25]. Moreover, solid creative self-beliefs (i.e., perceiving creativity as an essential part of oneself) are necessary to engage in prosocial behaviors: expressing active opposition against oppression and injustice [26,27]. Thus, creative self-beliefs are necessary to realize one's potential, fulfil duties, or act prosocial.

Media broadcasts could affect these beliefs through observational learning [28–30]. In line with social learning theory, the development of beliefs and acquisition of knowledge takes place through personal as well as vicarious experience [31,32]. We assume that symbolic representation of the actions relevant to creativity could shape viewers' beliefs about their own abilities even as a result of short, ephemeral contact. The malleability of creative self-beliefs was apparent in a study where reading brief notes about established creators, like Nobel Prize winners, led people to stronger beliefs that creativity is fixed, while the description of everyday creative activities, like crafting handmade pots, led to the conviction that creativity can be changed and developed [33]. Although this experiment did not use media content, it suggests that short contact with information (e.g., reading a definition of creativity) can already alter creative self-beliefs substantially.

2. Vicarious Learning through Media

Both traditional and modern media are conducive to vicarious learning [34]. The four main processes responsible for the efficacy of observational learning are (a) attention, (b) retention, (c) production, and (d) motivation [28,32]. First, the subject has to notice and select behaviors or attitudes to eventually mimic them. Attentiveness to and memory of media content to some degree depends on a learner's ability but also the nature of the displayed message itself. Media content designed for entertainment boosts attention and is highly memorable due to its affective nature (both negative and positive; [35]). Retention is evident in the case of repeated exposure to specific information, which is highly probable in the case of media—given the easy access to social media and cyclical programming—in which certain schemas are repeated several, or even several dozen times [34]. To reproduce activity presented in media, one needs to believe in being able to successfully imitate that act. While many shows (e.g., talent shows) focus mainly on some outcome of an action, there are other branches that instead emphasize the process of how something can be achieved or done, presenting progress in developing certain skills. For example, do-it-yourself-videos can shape the creative self-efficacy of viewers, both through direct information (e.g., precise instructions and affirmative comments), as well as observational learning (e.g., watching others succeed despite some challenges; [36]).

Observational learning is contingent on motivation, especially reinforcement that can come down to the direct result of the activities one performs [34,37,38]. In educational contexts, self-efficacy and intrinsic motivation are important for engagement in online learning environments [39]. In media contexts, vicarious reinforcement—observing the reward and punishment assigned to other people—can occur through receiving reactions of others to one’s Internet posts (e.g., likes, shares, followers), observing opinions of judges in talent shows, or even typical movie plots, where heroes wittily overcome the villain. Such experience can impact a viewers’ motivation to act creatively; see [40], the extent likely depending on the degree of active involvement. There is a risk that the elicited reward expectancy, related to this type of external motivation, will be detrimental to creativity [3]. However, an analysis of the motives for active creative engagement in the context of the Internet suggests that people focus mainly on the freedom of expression, the possibility of sharing their own work, and even on prosocial opportunities like bringing pleasure to others [41]. Furthermore, people who are more active in and on social media also report more creative activities and accomplishments [42–44]. Perhaps then, as it was indicated earlier, in the case of individuals who are characterized by a high level of intrinsic motivation, additional external reinforcement increases the chance for creative outcomes rather than attenuating it [45]. Especially when valuing the Internet as a locus filled with exciting and novel thoughts and ideas, as well as appreciation and tolerance, motivational preconditions for creative behavior seem to be met [46]. This seems especially likely when taking identified motivation into account—an external motivation component based on one’s individual values, that is affecting whether we engage in or stay absent from creative behavior [47].

In addition to motivation, the effectiveness of observational learning is also influenced by the characters, so-called models, presented in the media content. The key traits of the models, which attract the observer’s attention, are their high status and similarity to the observer [29,31,48]. Relating to the model increases the likelihood of a change taking place as a result of vicarious experience [37,49,50]. An observer-like model is impactful as the viewers’ sense of efficacy is influenced [29,34,48]. Moreover, model-to-observer similarity and observing the model’s positive reinforcement is important for people who are not confident about their abilities, who are inexperienced or have previously faced difficulties and thus would benefit most strongly from increased self-efficacy [32,51]. Media, even more so online, relates to the need for diversification, representing people all around the world by means of highly diverse environments, formats, and content; see [52]. Surely, exposure to diversity is not the same as experiencing it (e.g., personal factors such as interest lead to a greater reception of diverse ideas when being exposed to them; [53]). Thus, to benefit most from the existing diversity of content by means of vicarious learning or experiencing new perspectives, one intentionally needs to exit one’s own media bubble, so-called *echo chambers*, characterized by homophily of thoughts and of consumed content, e.g., [54], and actively access new horizons.

In summary, we believe that media content could be a great source of vicarious learning and can successfully be used as an informal form of education towards positive creativity; see [55]. Then, what kind of content, specifically, can strengthen creative self-beliefs, and consequently encourage constructive creative activities? Effective realization of our assumptions requires a conscious selection of media content and activities. In this respect, however, there is still a lack of competencies not only among the youngest generation but also, if not more, among caregivers—parents and teachers. Nevertheless, given the fact that the dynamic development of the media is beyond doubt, increasing media literacy—awareness about opportunities and threats in a process of consuming and generation of media content—seems to be one of the most appropriate solutions, not only to support the development of creativity but also other prosocial attitudes and valuable competencies; see [56].

3. A Million Different Ways to Engage: New Media Perspectives for Creativity

Creativity is not among the psychological constructs that remain untouched by new media environments and developments regarding digitalization. Still, rapidly flourishing domains such as digital creativity—creativity that is expressed through the affordances of digital technologies (see, for example, [57] for an overview)—have not received the attention equivalent to their comparatively high impact on society [58,59]. When viewing creativity as a distributed phenomenon with social, dialogical, and cultural facets [60], the Internet and respective online environments (e.g., specific online platforms) likely influence how creative professionals and novices cultivate creative skills, exert creative behavior, engage in creative communities, think about their own and others' creativity, and creativity in general. In online environments, individuals are given diverse tools at hand, and a stage to showcase their skills, allowing for creative self-expression as never before. Thus, to fully understand creativity on the Internet, researchers are required to unite individualistic and sociocultural approaches to the construct, abandoning existing reservations regarding either of these perspectives. Creativity research in digital environments such as the Internet is challenged to investigate interactions between individuals, communities, loci of highly specified knowledge and interests, and different technological environments. It is a calling for the development of new, multidisciplinary methodologies to fully be able to assess how creativity is evolving in light of the changing human, cultural, and technological influence (i.e., *creativity 4.0*; [58]), and how these areas of rapid growth can be used for learning (about) creativity [61].

4. Reach, Evaluation, and Creative Learning Opportunities

One of the key changes as a function of digitalization is the way creativity becomes visible and appraisable online. While there are some attempts to increase interactive elements in traditional media (e.g., the interactive film *Black Mirror: Bandersnatch*; [62]), online environments have taken interactivity to the next level. This is expressed in new forms of engagement, coining the term *produser* [63]—an active producer and consumer of content. We are no longer confined to keep our creative activities at bay, instead, we can use online platforms, apps, and messaging services to share them with the ease of a finger tap, at the same time being able to promptly interact with others and their content, thus potentially building social relations through creative engagement. Clearly, this opportunity dramatically expands domain borders and changes the interaction between the creators, audiences, and gatekeepers [64]. The connection between creative work and the creator can range from being closely linked to fully dissociated: Once uploaded, everyday creative behavior is visible to theoretically everyone, unless reach is restricted by oneself (e.g., privacy settings), the medium it is distributed through (e.g., platform restrictions due to geographic location), or affected by other, more general aspects of digital citizenship (e.g., digital rights; cf. [65]). The idea of unlimited reach as a direct route to fame is apparent when content *goes viral*, potentially deceiving the vast majority to think that establishing one's presence on the Internet is easy. Success, however, goes beyond simply being creative, involving maintenance and sharing experiences as a form of relationship-building with the community, due to social evaluation being implicated in creativity; cf. [66,67]. For example, popular *influencers* are not only content producers but community managers [68]. Still, it can be argued that it is now easier than ever to expose one's creativity to the world, independent of the actual impact.

Contrary to the business of influencing, showcasing everyday creative behavior is not typically done for monetary gain [41], but most platforms provide alternative success measures by means of metrics. In a typical case of everyday creative behavior shared online, our friends and the socially related environment could get to see a (more or less) well-arranged photograph of a sunrise during a morning hike and express their reaction in feedback. Depending on the online environment, this feedback could be by means of liking/disliking, commenting, or through other ways (e.g., reposting/sharing). When showcasing creative activities, we can hardly hide from evaluation given the structure

of most outlets of creativity. The received feedback can differ as a function of the online environment and embedded community and quality of the shared creative product or process. Importantly, this evaluation, and how one perceives it, will likely influence one's creative self-awareness and boost or attenuate one's creative self-efficacy—thus influencing the future realization of existing creative potential [14], and whether we are motivated to cultivate new creative skills. Others could inhibit one's creativity by exerting extrinsic pressure towards more conventional products through evaluation, discouraging highly original ideas [3]. Truly, nonconformity, low agreeableness, and willingness to oppose such external factors may be crucial to creativity in settings of heightened exposure [69], protecting inherent creative potential from outside world inhibition. On a similar note, one may discover mountains of creative content on the Internet and find the mere existence of it discouraging for one's own creative engagement, bringing the creative process to a halt in earlier stages (i.e., before an initial idea is converted to actual output). A mindset where creativity is viewed as a skill set that is subject to growth will certainly benefit an individual in preserving one's creative enthusiasm [70].

Indeed, the surge in diversity of online environments and high prevalence of online creative activity [41,60] fills the Internet with creative work of all kinds, some of which strikes at first glance, some hidden within the layers of platforms and communities. It would be unjust to merely see harmful potential in the acting out of people all over the world, in lieu, it can also be viewed as a fruitful source of inspiration when one makes use of the power of compartmentalized knowledge provided by amateurs and professionals. For an individual dedicated to a certain field of creative activities, participation in enthusiast communities on the Internet may yield the benefits of keeping up to date with ongoing trends and advances in the creative domain, learning creative skills and being able to receive refined feedback for one's own creative work by a community of individuals whose skill in an area may exceed one's own abilities, thus fueling the learning process. As an example, the platform *Mosaic*, instead of prompting its users to share outcomes, was dedicated to encouraging exchange on in-progress-work [71]: Users could pose questions on specific problems they were facing and received feedback more valuable than likes or typical comments, namely feedback that helped them develop their creative skillset. In an online learning setting, positive evaluative feedback led to generally higher perceived creative self-efficacy and intrinsic motivation, but even negative feedback that was deemed informative led to higher levels of intrinsic motivation [72]. Thus, for creative learning, users need to actively look for an environment that will fit their goal of cultivating skills, and online environments can be such places. However, rather than looking for simple feedback such as (dis-)likes, informative feedback, for example on processes rather than outcomes, seems more beneficial to developing creative skillsets.

5. Collaboration and Co-Creation: A Creative Selfie

On a different note, web browsers do not only open windows to specialist communities engaged in some niche, instead, they also enable large-scale collaboration on creative projects [73]. One such project was hosted by the online platform *Reddit*, a social news aggregator composed of so-called *subreddits* (i.e., forums a user can subscribe to). In 2017 (and, due to its initial success, again in 2022), *Reddit* launched a forum called *r/place*, where users could access an initially white digital canvas with 1000×1000 px resolution. They were given 72 h, a 16-color palette, and the following instruction:

There is an empty canvas.

You may place a tile upon it, but you must wait to place another.

Individually you can create something.

Together you can create something more. (<https://www.reddit.com/r/place>; accessed on 7 June 2022)

What followed was creative engagement by more than a million *redditors* (i.e., *Reddit* users), resulting in a total of 16.5 million placed tiles (i.e., manipulated pixels) and the final pixel art painting in Figure 1. Importantly, the sidebar rules in this subreddit explicitly

instructed its community to *be creative* (The rules were: 1. Be Creative; 2. Be Civil; 3. Follow Sitewide Rules; 4. Don't Post Personal Information; <https://www.reddit.com/r/place>; accessed on 7 June 2022), thus further underlining the creative outline of this project. Each user could only manipulate one pixel every five minutes (this timer was changed to three minutes after an according question by the administrators reached 10.000 *upvotes*.) using a 16-color palette, making it practically impossible for single users to transform their creative ideas into a large-scale outcome given the constant competition for pixels. Consequently, users would soon form communities to realize their common goal of creative activity: they started painting *together*, while also *competing with other users* (communities) for contested spots within the canvas. On a smaller scale, online art workshops were shown to lead to higher openness for others and their opinions, lower creativity anxiety, higher prevalence of pursuing everyday creative activities, and creative potential [74], underlining the potential of such interactive settings in online environments as a source for creative learning.

Looking at the outcome of *r/place*, a prominent and central part of the final canvas is a digital version of Leonardo da Vinci's world-famous *Mona Lisa*. It can be considered a statement in appreciation of creative genius, especially given its size in the canvas. Yet, the *Mona Lisa* was hard-fought territory, for example being contested by a community called *the void*. This community set themselves the goal to bring chaos to the canvas by creating a large structure of black pixels, devouring other paintings and art projects. Arguably, the void can be viewed as an antagonistic force: by introducing (*creative*) *chaos*, they motivated users to communicate and coordinate to defy such attacks—this was often realized by coordinating the joint effort via *discord servers* or within dedicated subreddits, even forming alliances with neighboring project creators or thematically related user groups. In *Reddit's r/place*, and probably on various other platforms, communities with greater numbers are in advantage in such conflicts [75].

R/place makes it clear that the Internet can have facilitating effects on the organization of creative participation, while educating people in a playful manner about the hard work necessary to nurture a creative product in a social surrounding full of conflicting values and ideals. People can use the Internet to organize on a grand scale, bundling joint creative interests while shattering geographic restrictions (albeit to later engage in a global fight over canvas territory).

In summary, *r/place* resembles what would happen if the Internet were to take a selfie. It is full of creative pixel art—a digitally native form of creativity—some of which had to withstand organized attempts of vandalism but was kept upright by the sustained effort of the community that initially and continuously co-created the respective pixel-drawings. As such, *r/place* not only showcases what forms of digital creativity may look like under the joint effort of hundreds of thousands, but the historic timeline yields an impression of the creative process in such settings. As a downside, such free-for-all environments may not value artistic quality, contrary to more explicit settings, e.g., [74], but instead appraise community-related value (i.e., an artwork that better reflects the interests of a community may have higher odds of persisting as opposed to an artwork of higher artistic quality that is at odds with the shared belief of what the platform is about).

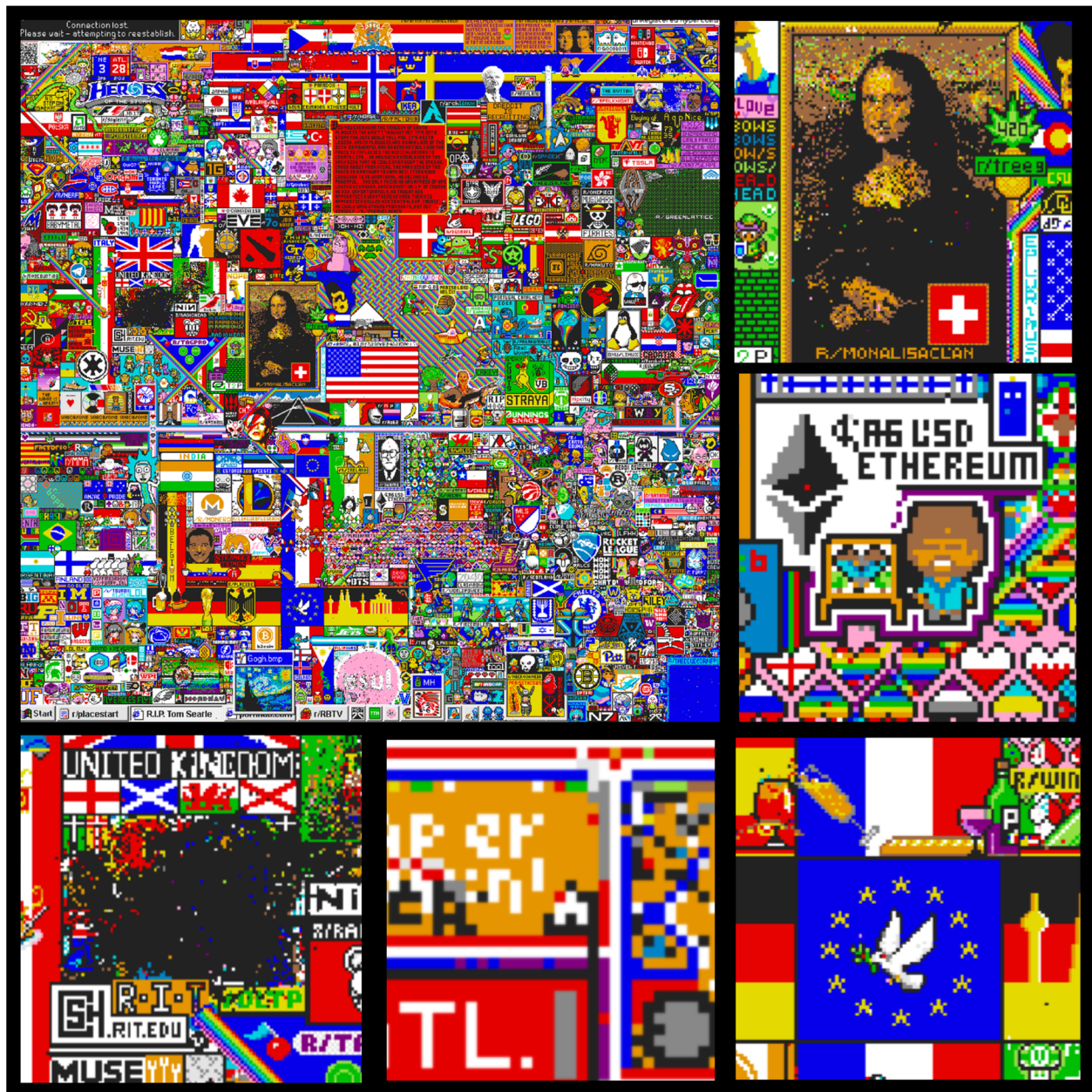


Figure 1. R/place's final canvas (2017) with highlighted aspects. Notes. This figure shows the final canvas after the 72 h period had passed in r/place (**top left**). Highlighted aspects of the canvas feature the void (**bottom left**), the white bear reference to black mirror (**bottom**; i.e., white shape with black outline) and the dove of peace within the European Union flag in-between the German and French flag (**bottom right**), the painter Bob Ross (**right**) and the Mona Lisa (**top right**).

6. Creative Immersion in Games and Virtual Reality

The Internet and other digital environments have opened a whole new world of opportunities for creative engagement and learning. This also includes fully immersive environments that can be accessed by creative professionals and novices, alike. Users can enter virtual reality (VR) and select from various brushes and colors to engage in VR-painting. Exhibited artworks by other users may serve as a source of inspiration, while available 3D models can easily be integrated into one's artwork. Similarly, VR incorporates various other digital creative behaviors such as animating into a more immersive 3D setting. Interestingly, VR applications also enable users to consume real-life creativity, virtually. The VR Museum of Fine Art [76]—contrary to real life—offers an unobstructed view of the

Mona Lisa (see Figure 2), as well as various other famous paintings and sculptures. Above all, the museum is always open and there are no queues. Artworks are underlaid with textual information and a visitor is handed a virtual guide to enhance the experience. Thus, this trip to the virtual museum offers an immersive and educational experience of art, accentuated by “museum sounds”. Through the lens of virtual reality, contemporary artists can also showcase their own artwork, as, for example, in the *Infinite Art Museum* [77]. In summary, virtual reality is a new medium through which creative content can be created and consumed. Thus, it may also serve as a new way through which educators can convey creativity and knowledge about creativity, and researchers can study phenomena of interest, such as co-creation or creative problem solving [78,79].



Figure 2. Virtual reality impressions from the *VR Museum of Fine Art* (left) and the *Infinite Art Museum* (right).

As part of the digital revolution, creativity may also be expressed through computer games. Video games enhance executive functions [80] and positively impact intelligence, even with control of genetic predispositions and socioeconomic status [81]. Moreover, intellectual skills and cognitive control are crucial for creative performance [82]. More directly, sandbox games, which leave a player with freedom of choice by not providing any specific target, can be seen as fruitful digital environments for creativity by means of actual creation—given that players can utilize the in-game tools to explore their own ideas and transform them to a digital outcome. Minecraft, a 3D construction game, is among this genre and creative performance within the game was related to novelty and usefulness scores in more conventional (e.g., alternative uses task—AUT; [83]) creativity assessments—the usefulness component being more pronounced than often reported elsewhere [84]. Accordingly, games that ask for solutions to a specific problem (e.g., solving a puzzle) may still elicit various creative cognition processes when allowing for alternative routes to solving the problem, forcing a player to creatively combine tools at hand. Often, this is taken to extremes in *speedrunning*, where players compete for the quickest possible way of finishing a game. To be quickest, one must find original ways of beating parts of the game, such as by intentionally making use of in-game glitches. In a recent study, Hall and colleagues [85] surveyed and interviewed regular gamers, identifying additional ways through which players can exert creativity. Considering the potential of game-based learning [86], it seems likely that the endorsement of games that do not constrain creative potential through their level design (e.g., allowing for open-ended solutions to pre-defined problems) might yield the benefit of nurturing creative skills.

7. Discussion

So far, we have described many possible mechanisms and media activities that can shape beliefs about creativity, favor the development of creative abilities, or influence creative behavior. We want to emphasize that the media has the potential to foster lifelong learning of creativity. We are not arguing that media use is sufficient to replace all other activities in support of developing creativity. However, we believe that, when properly applied, it can significantly contribute to creative learning. Importantly, creativity and technology are essential skills in education [61,87], and research in the area of technology-enhanced learning has demonstrated that digital environments can be used effectively to monitor and foster learning engagement. Integrating them into educational settings could help to establish more interest- and ability-driven learning and facilitate creativity regardless of the stage of life; see [56,88–91]. Moreover, researchers demonstrated the positive impact of media on highly demanding cognitive functions other than creativity in both longitudinal and experimental studies [80,81]. Thus, it can be supposed that the media could also be helpful in developing creative thinking and encouraging a variety of creative activities, and specific environments such as online platforms may motivate engagement due to the presence of communities—an evident facet in many of the prevalent motives for online creative behavior [41], but also a driver of satisfaction in online learning environments [90]. Additionally, media may connect formal and informal learning and address educational inequalities [55,92].

During the pandemic of COVID-19, the use of media in education has become more important, and in many cases, remote education turned out to be the only available solution [93]. This solution is also promising for the development of creativity. Online interventions are effective in shaping creative skills and related characteristics, as evidenced in an art workshop series [74]. Such effects might extend to large-scale creative collaboration and co-creation when considering theoretical literature that emphasizes the distributed nature of creativity in online environments [60], and case studies like *r/place* that revealed how certain aspects like community organization unravel during a creative project.

Not only dedicated interactions in digital reality can positively shape creativity. The entertainment aspect of the media can increase the chance for creativity through emotional impact. It is known that emotions, predominantly positive and active, are conducive to everyday and professional creative activity [94–96]. Fascinating in the subject of positive creativity is a recent study which showed that evoking positive emotions is more beneficial to generating bright ideas—products that are pleasant and have positive meaning [97]. Over 20 years ago, a concept of how to enrich learning during fun was proposed as *entertainment-education*, i.e., the use of educational or persuasive prosocial messages in entertainment programming [98]. It is important to note that this does not concern purely educational programs, but typically entertaining content—such as soap operas or role-play games—where educating messages are expressed but not put to the center of attention. The hidden educational information within funny and engaging content was proven to be effective; see [34,99], but to our knowledge not used to promote creativity.

More intensive media inclusion in education may raise legitimate concerns among others about addiction. However, the current state of knowledge allows us to suppose that creative abilities may fulfill a certain salutogenic function in the face of unhealthy media use. Creative ideation and activity are stronger related to active media participation but not associated with unhealthy use of media [100], and individuals with higher creativity skills are less addicted to smartphones compared to their less originally thinking peers [85]. We see this mutual relationship as the possibility of a double benefit: (online) media can support the development of creativity, which in turn can protect against the harmful effects of media consumption.

We do not want to romanticize the media impact, as we are fully aware of a lot of easily accessible “dark” content and malevolent action [100]. We agree that some of the available content could be detrimental to creative development [3], but most of all, we see the media as a tool that could be used for private and social benefits, thus going beyond

the potential for damage [101]: like a brick, the media can be used to build or destroy something. Therefore, we believe that to take advantage of the possibilities created by new media formats—for creativity development and other aspects in life—we need to focus more on media education, teaching people *media literacy*, presenting the influence on an individual and societal level, emphasizing on discerning the valuable and nurturing content and actions available from short-lived distraction without any educational value [102].

Thus, the effective realization of media education for creativity would benefit from an effort to teach media literacy, and the development of these competencies are relevant not only for children but also for parents and educators, who are often less familiar with media meanders than younger cohorts [56]. Supporting education for positive creativity with media use requires a significant expansion of our knowledge in this field. Although the media are undoubtedly one of the most essential environments of creativity, research on media influence on creativity is still in its infancy [59]. Due to the massive reach of media and the ubiquitous presence in our lives, more systematic exploration of the subject is necessary.

8. Conclusions

Referring to the social cognitive theory, we presented how specific content of media could shape creative self-beliefs and thus increase the chances of taking up creative activities for the benefit of oneself and society. The form of media communications, through their emotional character, draws attention and aids the recollection of presented content. The profiles of the heroes who, on the one hand, enjoy a high status due to their omnipresence in media outlets, while on the other hand being similar to the recipient, are likely to model selected behaviors. This is especially effective when a model in observational learning receives reinforcements, a reward for desired actions. Although these mechanisms have been successfully used many times to promote decent social behavior, little is known about their effects when it comes to shaping creativity.

Media consumption is only one side of the relation between creativity and media. Today, everyone with access to the Internet may not only consume media content but also co-create it. Online environments arguably offer practically any kind of content, thus, no matter how specific one's field of recreational or professional creative work is, one will probably find a community of like-minded and similarly skilled individuals for exchange and collaboration. As a major advantage of the Internet, such users can exchange and evaluate their work swiftly, without travelling places. The immediate access to feedback may help to channel effective work routines and creative learning (e.g., profiting from feedback that comes from people who have knowledge on the topic). Conversely, the typical outlets of creative activity (see, for example, [41]) are places where people expose their creativity to a public that may lack the specific skills or understanding necessary to appreciate highly original forms of creative work. This potential of negative evaluation and actual negative evaluation may hinder the development of creative skillsets. Nonetheless, the Internet is more than a digital playground; it is a fruitful source of feedback and collaboration, removing barriers and granting access to creativity. This is evidenced in platforms that aim at providing feedback on creative processes (e.g., Mosaic) and large-scale collaborative projects such as r/place, offering insights beyond creative processes, such as about cultural conflict, and how Internet users picture themselves creatively. Similarly, virtual reality and gaming serve as revolutionary outlets of creative experience. Through the lens of VR, we are enabled to appreciate the aesthetic appeal of legendary artwork as well as contemporary art. Once inspired, we have the virtual palette at our hands, making it easy to manifest our ideas in virtual paintings, sculptures, and animated stories. Similarly, digital games can also stimulate the development and realization of ideas, with the potential of sustaining the positive development of creative self-beliefs and of transmission to real-life skills, thus yielding educational value.

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