Articles

Supporting Youth Access to Research Dissemination through Digital Media: Analysis of Mental Health Impacts

John C.H. Hu [iD] [a], [*]

[a] University of Alberta, Alberta, Canada

Abstract

Research outputs towards dissemination – such as journal articles and academic conferences – may be difficult to access for marginalized youth, despite the fact that engaging youth in this access can help them equitably benefit from the existing research evidence-base while mobilizing new generations towards research utilization and application. A pilot study was conducted to assess digital media as an alternative tool for disseminating research to marginalized youth. Specifically, this article focuses on the mental health implications of communicating research to marginalized youth via digital media. Grounded in the perspectives of marginalized youth themselves, the three-phase study includes an exploratory literature review, a first round of interviews (n = 5) to refine the interview guide, and a second round of interviews with marginalized youth (n = 8) for a pilot investigation. Mental health impacts are analyzed with six emerging themes, with findings below. First, youth self-censor and can experience constant fear even in expressing support for a piece of digital media. Second, youth report intentionally seeking negative emotional experiences via digital media for personal growth and development. Third, youth can successfully receive transformational knowledge via digital media, but the inability to communicate this knowledge to peers and the powerlessness they can experience in being unable to utilize this knowledge can result in greater isolation. Lastly, the intrinsic link between digital media and creation of online communities around a common interest could be further explored towards successful research dissemination and utilization in the future.

Keywords: digital media, education, marginalization, mental health, research dissemination.

1. Introduction

Research dissemination, the sharing of results after the completion of a research project, is a process that is primarily characterized by journal articles and academic conferences (Kerner et al., 2005). Participation and access to journal articles and academic conferences can often present certain barriers to younger generations, particularly for those who already face barriers to formal higher education institutions. This qualitative pilot study was conducted to understand alternative educational tools to support youth towards their equitable access to research outputs.

[*] Corresponding author
E-mail address: chiahao@ualberta.ca (J.C.H. Hu)

Around the world, digital media is increasingly used within the classroom setting. Often combining multi-modal information of text, sound, image, and storytelling, the use of digital media to meet emerging learning needs has been reviewed even to the level of postgraduate education of medical professionals (Darbyshire, Baker, 2012). Although access to digital devices and the internet remains a barrier for some populations, the value of digital media can be seen in its application to simultaneously reach multiple rural and remote communities (Mindu et al., 2018). Additionally, youth often exhibit self-access behaviour towards digital media. A range of modern digital media, in the form of films, series, animations, games, and virtual reality, have all been applied towards formal use in higher-education institutions (Bui et al., 2021; Ghoman et al., 2020; Law et al., 2015). These forms of media attract youth to learn through creativity and emotional engagement. For example, games, as the tool commonly associated with "play", "entertainment", or "passing time", is one of the most well-studied tools, with an entire field of research dedicated to its educational application (Lateef et al., 2021).

Youth's motivation in self-accessing digital media, in conjunction with the rise of digital media used in higher education, positions digital media as a potential platform for research dissemination. Gaps in research dissemination resulting in incomplete research utilization or application have been estimated to cost more than USD 760 billion (Shrank et al., 2019). Supporting youth in accessing research outputs mobilizes future generations towards making a difference with the existing evidence base while potentially empowering marginalized youth to challenge inequitable systems that lead to their marginalization. Communicating research outputs in digital media seeks to lower access barriers towards inclusivity and equal benefit from research across populations prone to be excluded by society.

Youth exhibit significant self-access behaviour towards digital media compared to their limited access to traditional dissemination products and formal education. This self-access behaviour can be so intense that it can be commonly studied as addiction (Paulus et al., 2021). Through an interdisciplinary literature review on Web of Science and Scopus, existing evidence on digital media as educational tools facilitated the creation of the *Collection, Action, Transformation, Emotion, and Recommendation* (CATER) inquiry framework. This article emphasizes the *Emotion* domain of inquiry, intending to explore the emotional and mental health impacts of digital media as educational tools - directly from the perspective of marginalized youth themselves.

The long-term goal of this pilot study is to support the development of digital media that communicates research information in a way that is sensitive to and potentially supportive of the mental health needs of marginalized youth. The short-term objective is to 1) provide an understanding of how digital media impacts youth mental health, specifically when digital media is being accessed as educational or informational tools, and 2) explore themes worth future inquiry from the perspective of marginalized youth.

2. Method

The pilot study was conducted with a three-phase structure under basic qualitative research (Merriam, Tisell, 2015). The interdisciplinary literature review was performed to establish focus and operational definitions for the pilot study. The intersecting domain between 1) digital media, 2) research dissemination, and 3) marginalized populations was assessed to evaluate existing research that touches upon all three key themes relevant to the investigation. The literature review helped to establish the operational definitions of the study as follows:

Digital media: includes films, series, animations, graphic novels, games, and virtual reality but excludes all non-fictional sources, which deserve a separate, future inquiry. All of the following are excluded from this pilot study to support manageable scope: social media; documentaries; news, and other outputs of journalism; research outputs which are digitized but are pure texts without other forms of information communication via images, sound, etc.

Research dissemination: includes dissemination of research across disciplines, as youth should be supported in their access to the full range of research society produces. For the purpose of this research, all bottom-up dissemination of research is excluded. This includes studies and projects which emphasize disseminating the voices of the community to policymakers, educators, health professionals, and other stakeholders. While this is an important piece of the cyclical nature of information exchange in research, this pilot study emphasizes improving access to research for community members, especially for youth experiencing marginalization.

Marginalized populations: the pilot study emphasizes intersectionality (hooks, 2000), recognizing that a single individual may face multiple barriers or identify with more than one marginalized group in society. For the purpose of the pilot study, all participants must meet the dual criteria of: self-identifying with 1) a barrier to formal education, as well as 2) a status of marginalization such as living as a racial minority.

Procedure

Phase I of the study is defined by the interdisciplinary literature review, which produced the CATER framework of inquiry for semi-structured interviews. The CATER framework is established as follows with accompanying rationale.

Collection: which particular pieces of digital media are youth already drawn to? What are their favourites, and which pieces of work have been the most useful, meaningful, or beneficial to their lives from their perspective? Why? The rationale of this as a domain of inquiry is to open up the conversation through what is of interest to the participants, as well as help the researcher understand the perceptions of utility and benefit of digital media from the perspective of marginalized youth.

Action: did digital media inspire youth to take action, and if so, what kind of actions did digital media inspire? This is central to the context of the long-term objective of the study, which is to support youth's equitable benefit from research outputs. The fact that digital media has the potential to inspire action beyond knowledge absorption serves to inform future investigations on how digital media can facilitate research application and utilization after the initial engagement.

Transformation: does digital media provide new information and new understanding beyond what youth already know? Does digital media have the potential to change the attitudes, worldviews, life goals, and decisions of the youth? If digital media is to be seen as a valid platform for communicating research information to youth, transformation or evidence of change after exposure to digital media is worth investigating. In other words, simply affirming what youth already know through digital media will not result in youth's equitable benefit from new research-based information.

Emotion: how does digital media impact youth's emotions positively and negatively? What do youth think about digital media's impacts on their own mental wellbeing? This is a key domain emphasized by this article. Emotion plays an important role in two ways. First, emotion has often been removed from research and academia in general as it is viewed as an uncontrolled factor impacting scientific neutrality. On the other hand, emotion is increasingly recognized as an important factor in the communication of research, to the point that emotional immersion and emotional engagement can be seen as indicators of validity in qualitative research (Finlay, 2006). Assessing emotion can help determine how engaged and absorbed youth are in the research-dissemination process. If, after receiving research outputs, youth exhibit a complete lack of emotion, this is potentially an indicator of unsuccessful engagement rather than definitive evidence for scientific neutrality.

Second, digital media can impact youth's mental wellbeing negatively and should be acknowledged as a potential negative influence. At the same time, digital media can provide respite and a safe space (Silver, Slater, 2019) for youth, especially marginalized youth who face stigma or isolation in their physical communities in contrast to their digital or online surroundings. The act of communicating research to youth should not negatively impact youth's mental wellbeing; this principle drives the CATER framework's investigation into youth's emotions and self-perceptions of emotions.

Recommendation: from the youth's perspective, how do researchers turn research outputs and evidence into good digital media? This final domain of inquiry seeks to directly assess what factors youth see as desirable qualities in digital media. Grounding the concept of "good" or influential digital media in the perspectives of marginalized youth themselves is critical, as the long-term objective is to engage this group as a valuable audience for communicating research.

Participants

Phase II of the study emphasized responsible and sensitive engagement of marginalized youth in research. Prior to the actual engagement of marginalized youth, preliminary interviews were conducted with individuals with qualitative research experience. The rationale for this phase of the study is to test and refine the interview guide and address any outstanding methodological concerns to minimize challenges when conducting interviews with marginalized youth.

Convenience sampling (n = 5) was performed with individuals, with the inclusion criteria of having prior experience as a qualitative interviewer. The shared characteristic of the sample engaged in this study is that all participants worked in the field of international development or rural development due to convenience sampling.

Phase III of the pilot study engaged marginalized youth (n = 8) in semi-structured interviews. Participants must identify with at least one barrier to formal education and identify with a marginalized group. All individuals identified with more than one barrier to formal education, including financial, geographic, familial, structural, and barriers related to discrimination. Seven individuals identified with more than one marginalized group. Representation among marginalized groups is listed as follows: caregiver of an individual living with chronic health condition or disability; personally living with a health condition or disability; personally experiencing or recovering from mental health challenge; a survivor of childhood abuse; racial minority; immigrant or forced-migrant; belonging to a rural or remote community; and experience with housing insecurity, homelessness, or street-survival. The final selected sample in this pilot study represented all groups above. Notably, while participants identified as belonging to different racial minorities, no participants identified as indigenous, suggesting the need for future research to apply intentional strategies towards the inclusivity of indigenous communities.

Individuals engaged were above the age of 18 and willing to provide informed consent without the need for a parent or guardian. Individuals were able to communicate in English, though English did not need to be their first language. Ethics approval for this pilot study was conducted through the University of Alberta, Canada.

Table 1. Participant Demographics, Composite Anonymous

Participant Demographics	Phase II (n=5)	Phase III (n=8)
Average Age	~34	~22
Ethnically Diverse	80 %	75 %
Self-identified Low SES	60 %	100 %
Self-identified with marginalization status	60 %	100 %

Data Analysis

Data analysis was performed through open coding to identify broad themes and through axial coding to confirm recurring themes. Additionally, data were analyzed with a time-progression lens. Phase II of the preparatory interviews illustrated that participants tend to disclose information on their interests and their personal mental health near the end of the interview. Member checking was performed and validated this finding. Participants directly reported fear of judgment and feeling the need to provide the researcher with "academic" information. Both of these concerns inhibited participants from providing direct responses in the initial phase of the interviews. A lens of time progression throughout the interview transcript helped gain insight into participants' perceptions and comfort levels to inform the *Emotion* domain in the CATER framework. In addition to open coding, axial coding, and time progression, the multi-phase study design of the pilot allowed for comparing responses from international development researchers in the preparatory Phase II and marginalized youth in Phase III.

3. Results

The results of the pilot study in relation to mental health are outlined below, particularly emphasizing unexpected findings or findings which provide nuance to common perceptions of youth and digital media. Data is organized into primary themes as follows:

Addiction to Digital Media

Participants were open to acknowledging addiction. However, views on addiction differed, with an additional layer of discussion on control or autonomy. The perspectives of marginalized youth confirmed that addiction to digital media could be distracting or inhibiting them from what would benefit them in the real world. Conversely, participant responses also supported that an extended time spent engaging with digital media is not automatically considered an addiction – if they intentionally chose to spend that time. In other words, they had control over when to start and stop, and the engagement length was intentional to suit what they felt was needed in their lives. This suggests that control and self-control could be better understood from the perspective of the youth themselves. When prompted if the participant's conceptualization of addiction changes if they were distracted from real-life duties due to their intentional prolonged engagement, participant responses showed another layer of nuance:

"*Yes, even if I do not do something, I choose it that way. I know I'm not in the right mindset yet. Even if I stopped watching something and went to work, it doesn't mean it's good work, and I'll have to re-do it anyways.*" (Participant #4, Phase III)

The data suggests that digital media can be applied by the youth to prepare themselves to be in the right mindset for real-life tasks. This finding is corroborated even by participants who acknowledge losing control of their engagement in digital media. A participant reports that the value of digital media is that it provides *predictability* in one's life. In other words, by engaging in a digital game, the participant knows exactly what actions will produce what outcomes in the experience. From the participant's perspective, this, in turn, creates assurance and a sense of safety when life is full of circumstances beyond their control.

In the context of living as a marginalized youth in society, predictability can be viewed in relation to the concepts of autonomy and control. Participants also report that real life starkly contrasts the world presented in digital media.

"*You can work and study, but still not get a job. Games aren't disappointing like that, though.*" (Participant #8, Phase III)

In other words, the real world can make promises to marginalized youth but not keep those promises unless they fit the mold of being not marginalized (Nicholls, 2011). Digital media, in a sense, provides an alternative dimension in which marginalized youth feel rightfully rewarded for their labour. Even if the rewards are virtual, the sense of being able to complete a task and receive a justified result can be comforting. These experiences perhaps help youth to self-medicate with the idea that life will eventually work out the same way too, or these experiences can simply help take youth's minds off the actual injustices they face in real life.

The most unexpected result under the *Addiction* theme is the participants' openness to acknowledge and engage in discussion around media addiction. The semi-structured interview guide does not include an active probe to assess addiction in case it is perceived as disrespectful or judgmental of marginalized youth. When marginalized youth present a relevant concept, the researcher probes. Ideas related to addiction were naturally present in the responses of 5 out of 8 participants. All participants did not shy away from probes on this topic, suggesting that marginalized youth may have more self-awareness and self-reflection on this issue than previously conceived by the researcher. Most importantly, the intricate relationship between addiction and the level of control or autonomy society gives marginalized youth deserves further investigation. Autonomy and control are essential to mental or emotional health and have been extensively studied in impacting physical health (Garces-Ozanne et al., 2016). The use of digital media to provide a virtual space for this autonomy may have applied value. Within digital media, youth can experiment with the autonomy they are denied in real life.

Pain of Critical Consciousness and Learning

Unlike addiction, *Pain* and negative emotions were intentionally probed by the interview guide under the CATER framework. The rationale is to provide a balanced perspective which does not prioritize the positive impacts of digital media. Even though significant research directly applies digital media in clinical practice for therapy (Garrido et al., 2019), the pilot conceptualized a balanced approach as participants are not accessing digital media under the therapeutic practice of a health professional. Participant responses on negative emotions ranged from the basic shying away from certain genres like horror or crime, to extremely personal and complex reflections. A notable theme is that while participants acknowledge negative emotions stemming from digital

media engagement, this does not prevent them from continued self-access. For some participants, this actually promotes their self-access.

The paradoxical observation of accessing digital media in search of negative emotions is difficult to disentangle, with a wide range of different responses that emerged from the youth's perspective. Primarily, participants expressed interest in learning more about the real world and its potential tragedies. Putting this kind of learning in a work of digital media creates a certain distance, and shaves off parts of the hard-to-swallow realism. In the words of one participant, learning about terrible events through digital media helps "soften the blow". The application of this finding is specifically relevant to the context of the pilot study. In supporting youth towards equal access to research outputs, society should consider how much emotional burden can come with learning new information - particularly about health inequalities, social injustices, and systemic oppression that are relevant to the lives of marginalized youth. The process of learning and self-realization can come with significant emotional struggle, as noted by hooks (1994, p. 43) in her experience with the classroom context. Compared to classroom-based and academic sources of research dissemination, presenting research via digital media could potentially detract from the factuality of the information. Yet, from the youth's perspective, this alternative format could better support their mental health while absorbing new information relevant to their lived experience.

For another participant, the act of seeking out negative emotions is the process of "working on myself". This finding is echoed by clinical practices in mental health (Siehl et al., 2021): exposure to negative experiences can be a way to overcome prior traumatic experiences. Here, digital media presents a virtual space in which participants have a degree of control over how much exposure they need - in order to feel they are empowered to overcome personal challenges. If a piece of digital media is too overwhelming, they can simply turn off their devices and cease engagement. The most significant implication of this finding is that marginalized youth are self-accessing digital media with the potential intent to better their lives. Just like how privileged youth can easily access formal educational opportunities or paid health services to better their lives, digital media presents a lower-barrier and arguably lower-cost alternative for marginalized youth. Digital media may also be lower-efficiency in comparison to formal education or formal health care, but it is a solution that marginalized youth can access with a certain degree of self-autonomy and limited penalties on their finances.

Despite the fact that participants report seeking out negative emotions in digital media intentionally, not all responses in the *Pain* category suggest benefit. Participants also reported that accessing certain types of digital media can make them feel mentally exhausted or emotionally drained, yet in these cases, the youth are in power to cease engagement. On this point, participants reported discontinued access to certain works that they knew would be overwhelming or triggering. In general, the fact that participants continue to access certain media that bring negative emotions means these negative emotions have some perceived benefits - and are not crossing the emotional limits participants have set up for themselves. The presence or absence of continued self-access behavior is a choice participants have control over. In non-formal learning settings, youth are not required to engage in any piece of digital media they do not want to. Assessing negative emotions in light of the first theme of responses, *addiction* illustrates a common link to the concept of autonomy: digital media can provide choices marginalized youth cannot have in the real world.

Self-Expression via Digital Media

This theme is cross-analyzed with another domain of inquiry in the CATER framework: *Action*. Participants reported specific actions that were catalyzed by their engagement with digital media. Many of these actions reported by participants are related to creative endeavours; all eight participants either have a creative output they are working towards or respond positively to having an idea of future work. The stigma of not having a voice in society or feelings of being unheard can impact mental health on multiple levels (Loades et al., 2020). Understandably, marginalized youth may not always find physical platforms or opportunities in their local community to share their thoughts or lived experiences. Participants do not directly make the link between creativity and mental health, but some responses suggest an inherent, inseparable connection:

"*I just need to. If I don't get creative for a long time, I actually go mad. Writing will always be a part of me*" (Participant #2, Phase III).

In this particular response, youth's engagement with digital media is not just as a consumer or passive observer but as a creator. In the context of the pilot study, it must be acknowledged that

marginalized youth becoming creators of digital media will not support their increased access to research outputs. Even though digital media creators may self-access more digital media content to improve their skills, this link to increased access to information cannot be assumed without further evidence. Significant research supports digital media creation as a form of bottom-up research dissemination, in which community perspectives, compiled via qualitative research methods, are disseminated to policymakers and other stakeholders. In fact, through the Phase I literature search, this bottom-up research dissemination constitutes the majority of existing research on the intersection between digital media and research dissemination (Cabitza et al., 2016).

Participant responses show that there is a significant inclination of youth towards creating their own digital media while acknowledging the potential harms of this journey. This self-expression through digital media may help youth feel acknowledged and accepted, that their lived experiences and perspectives are worth sharing, and that they are contributing to a community of creators. All of these can have positive impacts on mental wellbeing. Likewise, participants acknowledge that some of their goals are unrealistic - that they might be working towards "something that may never happen," according to one participant. Other participants have creative aspirations that they acknowledge are "big," but they remain optimistic. In other words, the act of being heard is not guaranteed just because they have embarked on these creative journeys. After the end of their creation, they may continue to feel censorship or marginalization. A focus group setting in the future may help to encourage more in-depth discussions on how much of this impact is disillusionment versus much-needed hope while being marginalized in a real-life context of hopelessness.

Fear Stemming from Engagement with Digital Media

Intrinsically, *fear* is a common theme that was visible through Phases II and III. This theme is implicit, and engaging participants in the discussion of fear proved difficult. However, member checking was performed successfully to validate this concern: participants, marginalized or not, can experience fear in expressing their support for a certain work of digital media. Participants expressed that at the beginning of the interview process, they tend to disclose what is generally accepted and liked by the public – or even attempt to guess what the interviewer may like. This was not necessarily an effort to build a common language but rather a fear-based response. Indeed, it can be emotionally damaging to have a piece of media one holds dear to one's heart be judged or rejected; the resulting impacts on the validity of interview data would benefit from future investigation. Participants were willing to engage in discussion of generally popular works, even at great lengths, before disclosing their actual favorite pieces of digital media.

Researchers and interviewers need to exercise additional care and sensitivity to collect valid data on digital media and mental health. Additionally, the academic setting on its own may be a source of pressure that directs participants towards what they deem as socially acceptable or academically acceptable responses. It is important to note that none of the participants' responses on their favorite pieces of digital media would be considered socially- unacceptable. There were no works involving sexually explicit material, graphic violence, or illegal activity in the responses. Still, participants' personal favorite works were not disclosed until the later segments of the interview process.

This illustrates perhaps a constant background concern affecting the mental wellbeing of marginalized youth who engage with digital media. Whenever a youth develops a liking or some form of support for a piece of digital media, that youth needs to be prepared to be judged by society for this support. The most unexpected finding in relation to this theme is how prevalent and how severe the impact can be. One participant describes that before disclosing their interests in digital media - even in a completely anonymous online setting - the participant prepares initial probing questions to assess the other person's interests first. If the response received is negative, the participant describes keeping certain pieces of digital media strictly off-limits in future discussions with the other person. In other words, the mental health impacts are deemed impactful enough to warrant preconceived communication strategies.

The theme of *fear* highlights two important questions. Firstly, what is socially accepted, or what we call mainstream? What society has promoted as mainstream is not always only the result of public support; corporate marketing cannot be eliminated from the discussion of what receives public exposure (Prag, Casavant, 1994). Digital media, in previous thematic inquiries, seems to be a virtual realm in which marginalized youth can find respite from real life. Through probing into the theme of *fear*, the real world is shown to invade digital media as a safe space once

again. Youth report the need to respond to what is socially acceptable or popular, as determined by the larger community, to avoid stigma.

The second question worth considering is: How much pressure are marginalized youth facing in online communities? This question is especially relevant in light of numerous studies on cyberbullying (Tokunaga, 2010). While digital media is a decidedly personal engagement, youth still need to face the presence of a digital or online community that may not fully support their passions. In applying digital media to research dissemination, the potential introduction of digital media with research-dissemination intent may produce changes in the landscape of digital media and public acceptance. This, in turn, can have future impacts on the mental health of marginalized youth if digital media designed to disseminate research is perceived as unpopular among society – or among privileged youth.

Others: Community, Relationships, and Socializing

In relation to the theme of *fear*, the theme of *others* emerged only when the researcher allowed participants to discuss non-fictional digital media. Non-fictional sources are not included in the scope of this pilot study, but participant responses generated unanticipated findings of new gray areas. Previously, the primary gray area identified by the researcher was documentaries, which were decidedly removed from the scope of this pilot and reserved for future investigation. However, the pilot study with marginalized youth would illustrate new gray areas between fictional and non-fictional content, namely, *online communities* and *derivative content*.

Online communities are no longer limited to traditional conceptualizations of a chatroom or internet forum. Marginalized youth may be drawn to content-creating online communities such as *Games Done Quick*, an organization that streams gameplay videos with the dual intent of breaking a world record for the shortest completion time while raising funds for non-profit organizations (of note. *Games Done Quick* is known for raising awareness and funding for youth and mental health causes). The significance of online communities can be illustrated by not just the number of subscribers or participants these communities can gather but also the sheer dollar value of donations they have generated (Sher, Su, 2019). Participant responses illustrate that youth are drawn to communities as such because they present a place where youth can find people sharing similar interests. Not only so, but the following was also reported to have a specific, positive impact on mental health: participants described that watching other people "have fun," "laugh," and "enjoy each other's company," even if merely in digital form, provided a positive and heart-warming experience.

This has wide implications for the mental health of marginalized youth and raises several questions. Do marginalized youth enjoy watching streamed content from online communities simply because it is simple to access - as in, it is a video they can play in the background while completing other formal tasks (akin to listening to a friendly radio conversation in the background)? Or do marginalized youth enjoy watching online communities because they can observe without physically being present in this engagement, thus never exposing themselves to potential judgment from real-life people? Alternatively, are marginalized youth's immediate surroundings so alienating that these online communities might be the best source of friendship – virtual or not – that they could find? These considerations are linked to participant responses on *fear*, as engaging with online communities can be seen as a way to have one's interests supported, validated, and even collaboratively celebrated to dispel those concerns.

This concept of online communities is directly linked to another unexpected gray area: *derivative content*. Derivative content can take many forms, some of which are directly reported by participants as beneficial enough to self-access. First, derivative content can be a reaction video, in which content-creator films themselves watching a movie or other piece of digital media while expressing their feelings on camera for the world to see. A second form of derivative content is a review or analysis. Unlike traditional written forms, these can take many creative manifestations, such as video essays or new, fan-created sequels. Thirdly, participants also expressed interest in non-fictional derivative content related to authors, directors, artists, and other digital media creators they support. These include biographies, public speaking recordings or interviews, and behind-the-scenes creative processes - all of which participants report as informational and inspirational. In other words, after engaging with digital media, participants exhibit self-access behaviors for more relevant information. This desire to access relevant information is no longer limited to accessing fictional information but also real-world information - which youth also perceive to be beneficial. The act of seeking out derivative content allows youth to build a greater

connection to individuals, such as the original authors or creators of derivative content on digital media they enjoy.

The emerging concept is that a clear delineation between fictional versus non-fictional media, while useful for a research study, does not exist in a binary in the youth's experience. Digital media, for some participants, is intrinsically linked to sources of information and engagement that is decidedly non-fictional. The implication for future studies is that limiting discussions may result in incomplete narratives that sever participants from individuals who inspire them. In the context of the research-dissemination objective of the pilot, the theme of *Others* provides significant new directions for exploration. Can a piece of digital media, co-created by researchers with the intent of disseminating research, give rise to an online community? In turn, can the resulting online community impact the mental wellbeing of marginalized youth and bridge them to real-world contacts and opportunities for greater empowerment?

Isolation: Physical and Mental

The theme of *isolation* in this context refers to increased loneliness or stigma as a result of engagement with digital media. Also linked to the theme of *fear*, *isolation* is present when marginalized youth find themselves unable to establish a common language with others after engaging with digital media. This is beyond what might be described as social awkwardness, but rather, a growing passion for a specific area of interest where they begin to find no peers. As one participant puts it, the worst part of digital media is the ever-present loneliness. When youth access digital media - and the engagement presents them with new ideas towards transformative learning - this alone can create a chasm between themselves and others who have not been exposed to the same ideas. For this part of the research, the interviewer probed precisely for the kinds of new learning that led to feelings of isolation.

Participant responses to the probe are difficult to encapsulate, suggesting that many of the ideas leading to participant feelings of isolation indeed cannot be efficiently communicated by language alone. These responses present an intersection of passions towards psychology, metaphysics, and philosophical concepts they gained from digital media, passions which are compounded by their personal perspectives and past experiences. This suggests that digital media engagement can communicate research-based information at a depth that surpasses rote and fact-based learning while inspiring new lifelong interests among youth. At the same time, when youth find themselves incapable of sharing these interests with others, the isolation drives them towards more digital media engagement in a cyclical pattern. In the context of research dissemination, the theme of *isolation* provides a mental health warning. When research is successfully disseminated via digital media, society must be ready to arm marginalized youth with support such as language, peers and leverage points in their lives to use or share the new knowledge. Simply increasing access to knowledge, though conceptually more beneficial than limiting access, also comes with the risk of increased feelings of isolation or even powerlessness for already marginalized youth.

4. Discussion

The results of this pilot study suggest there is significant depth to be explored beyond media addiction or media-as-violent influence among youth. Other key uncategorized findings and unexpected findings are summarised below. First, some participants exhibit an interest in engaging the interviewer in intellectual debate - which is outside of the scope of the research study. As part of the interview standard, the interviewer does not bring in opinions, with one exception: positively acknowledging digital media reported by participants as valid for the interview. Regardless, participant responses indicated an interest in presenting perspectives which are meant to challenge the interviewer's questions. Whether this is an expression of their reaction to a potentially unequal power relationship or an expression of general discontent with injustices in society requires more investigation. Member checking was conducted in a mild, non-confrontational manner. Participant responses suggested they did not mean harm, but simply wanted to engage in a two-way discussion with the interviewer. This is a particularly notable finding: instead of assuming marginalized youth are prone to bringing challenging responses in general, the conceptualization of research as a one-way conversation may not be conducive to collecting data on the mental health impacts of digital media. Potential future research directions may test alternative engagement strategies, including

participatory action research (Kemmis, Wilkinson, 2002) in which participants are naturally positioned towards two-way or collaborative dialogue.

A key finding is that 6 out of 8 responses specifically mention past trauma in their responses. Participant tendencies to disclose trauma during the interview may be the result of the intake survey, which included an option for participants to identify as a survivor of past abuse. Still, to keep the qualitative interview within the scope of digital media as educational tools, no questions and no probes were used regarding trauma or abuse. The pilot study showed that discussions on digital media can draw out responses that relate to trauma. In future studies, researchers should be well-prepared for these discussions to arise. The participants' willingness to disclose such information may also be interpreted as an indicator of trust. In building true equal-power relationships between researcher and participant, the pilot strongly suggests value in multi-interview engagement. Sharing one's past trauma for a one-time engagement, only for the researcher to move on to the next participant, does not seem apt if the mental health of marginalized youth is a priority.

Relevant to this finding is the high level of interest in post-interview engagement. When participants were asked if there was any information they would like to add or if they felt there were any questions the interviewer should have asked, all participants responded negatively. This was an unexpected finding. Yet, when the interviews came to a close after that final question, all interviews continued, including one that reached another fifty minutes of engagement. This suggests that the personal nature of engagement with digital media may not be well-suited for an interview process. When the participant perceives that their main task of the interview is done, they are willing to share and actively share more insights. The participants may have internally conceptualized these insights as irrelevant. Initially, the researcher questioned if these post-interview responses were provided due to the participants' intentions of keeping them off the interview transcript. Member checking indicated that participants were willing to keep post-interview material as part of the official interview. In other words, the post-interview responses are potentially what the participants have wanted to express all along, which surfaced only after they felt they had accomplished the task set out for them.

5. Limitations

This study was conducted with a small total sample (n = 5 and n = 8) as a pilot for preliminary investigation. The engagement involved member checking but would benefit from iterative, multi-session engagement in the future. The intake survey illustrated a gap in engaging marginalized youth who identified as indigenous. Furthermore, sampling was restricted to individuals with a high command of English. Thus, this exclusion suggests that while individuals with disabilities are represented in the sample, individuals with neurological or developmental conditions affecting communications were not successfully engaged. Including individuals with diverse disabilities and learning needs will be highly desirable for future research toward understanding truly equitable dissemination of research to marginalized youth.

6. Conclusion

This pilot study assesses marginalized youth's perspectives on digital media as a tool for research dissemination – with the goal of supporting equitable access to research outputs and associated benefits. Specifically, this paper focuses on the domain of inquiry on mental health impacts, with key presentations in six themes: *Addiction*, *Pain*, *Fear, Self-Expression, Others*, and *Isolation*. The results suggest that marginalized youth can be self-aware of their addiction, which they not only openly acknowledge but exhibit self-control behavior over. Their prolonged use can be a response to finding some sort of autonomy and control, especially when society denies them both. Youth experience negative emotions and, paradoxically, choose to access digital media in pursuit of these negative emotions as part of their learning and development process. Again, this engagement is under the control of the youth themselves, as they also report directly shying away from certain pieces of digital media that cross their emotional limits.

All participants, including non-marginalized participants from Phase II, expressed fear of judgment regarding the pieces of digital media they enjoy. This is a constant concern with complex ties to societal views on what is mainstream or acceptable digital media. Digital media can arm youth with a voice and a creative outlet to share their lived experience when society does not grant

them other platforms. Similarly, this potential outlet can lead to unrealistic expectations of becoming a digital media creator, as well as the possibility of future disappointment, as noted by the youth. Youth report themes beyond the pre-conceptualized scope of the study, suggesting definite mental health impacts from digital media in the form of related online communities and derivative content. Lastly, digital media may exacerbate the isolation experienced by marginalized youth, especially after digital media has given them access to new knowledge and perspectives with no means to utilize these new insights. Finding like-minded peers and support is not something digital media alone can offer - but a research community dedicated to the inclusion of marginalized youth can.

7. Declarations

Ethics approval and consent to participate

Ethics approval was completed through the University of Alberta, with informed consent from all participants.

Consent for publication

Not applicable.

Availability of data and materials

Please contact the author for data and materials associated with this study.

Conflict of interest statement

The author reports no conflicts of interest.

Authors' ORCID

John C.H. Hu https://orcid.org/0009-0002-0289-9059

References

Bui et al., 2021 – *Bui, I., Bhattacharya, A., Wong, S.H., Singh, H.R., Agarwal, A.* (2021). Role of three-dimensional visualization modalities in medical education. *Frontiers in Pediatrics*. 9: 760363. DOI: https://doi.org/10.3389/fped.2021.760363

Cabitza et al., 2016 – *Cabitza, F., Fogli, D., Locoro, A.* (2016). Virtual patients for knowledge sharing and clinical practice training: a gamified approach. In *Games and Learning Alliance: 4th International Conference, GALA 2015, Rome, Italy, December 9-11, 2015, Revised Selected Papers 4* (pp. 329-335). Springer International Publishing. DOI: https://doi.org/10.1007/978-3-319-40216-1_35

Curran et al., 2015 – *Curran, V., Matthews, L., Fleet, L., Simmons, K., Gustafson, D.L., Wetsch, L. (2017).* A review of digital, social, and mobile technologies in health professional education. *Journal of Continuing Education in the Health Professions*. 37(3): 195-206. DOI: https://doi.org/10.1037/0278-6133.24.5.443

Darbyshire, Baker, 2012 – *Darbyshire, D., Baker, P.* (2012). A systematic review and thematic analysis of cinema in medical education. *Medical Humanities*. 38(1): 28-33. DOI: https://doi.org/10.1136/medhum-2011-010026

Finlay, 2000 – *Finlay L.* (2006). 'Rigour', 'Ethical integrity' or 'artistry'? Reflexively reviewing criteria for evaluating qualitative research. *British Journal of Occupational Therapy*. 69(7): 319-326. DOI: https://doi.org/10.1177/030802260606900704

Garces-Ozanne et al., 2016 – *Garces-Ozanne, A., Kalu, E.I., Audas, R.* (2016). The effect of empowerment and self-determination on health outcomes. *Health education & behavior*. 43(6): 623-631. DOI: https://doi.org/10.1177/1090198116667665

Garrido et al., 2019 – *Garrido, S., Millington, C., Cheers, D., Boydell, K., Schubert, E., Meade, T., Nguyen, Q.V.* (2019). What works and what doesn't work? A systematic review of digital mental health interventions for depression and anxiety in young people. *Frontiers in Psychiatry*. 10: 759. DOI: https://doi.org/10.3389/fpsyt.2019.00759

Ghoman et al., 2020 – *Ghoman, S.K., Patel, S.D., Cutumisu, M., von Hauff, P., Jeffery, T., Brown, M.R.G., Schmolzer, G.M.* (2020). Serious games, a game changer in teaching neonatal resuscitation? A review. *Archives of Disease in Childhood-Fetal and Neonatal Edition.* 105(1): 98-107. DOI: https://doi.org/10.1136/archdischild-2019-317011

Hamilton et al., 2011 – *Hamilton, B., Berk, S., Bundschuh, R.* (2011). Soul Surfer-Movie Tie-In: A True Story of Faith, Family, and Fighting to Get Back on the Board. Simon and Schuster.

Hooks, 1994 – *Hooks, b.* (1994). Teaching to transgress: Education as the practice of freedom. New York: Routledge.

Hooks, 2000 – *Hooks, b.* (2000) Feminism is for Everybody: Passionate Politics. Print.

Kemmis, Wilkinson, 2002 – *Kemmis, S., Wilkinson, M.* (2002). Participatory action research and the study of practice. In *Action research in practice* (pp. 21-36). Routledge.

Kerner et al., 2005 – *Kerner, J., Rimer, B., Emmons, K.* (2005). Introduction to the Special Section on Dissemination: Dissemination Research and Research Dissemination: How Can We Close the Gap? *Health Psychology.* 24(5): 443-446.

Lateef et al., 2021 – *Lateef, F., Lim, R.E., Loh, M.W.Y., Pang, K.Y.C., Wong, M., Lew, K. X., Madhavi, S.* (2021). Taking serious games forward in curriculum and assessment: Starting infusions right every time. *Journal of Emergencies Trauma And Shock.* 14(4): 232-239. DOI: https://doi.org/10.4103/jets.jets_82_21

Law et al., 2015 – *Law, M., Kwong, W., Friesen, F., Veinot, P., Ng, S.L.* (2015). The current landscape of television and movies in medical education. *Perspectives on Medical Education.* 4(5): 218-224. DOI: https://doi.org/10.1007/s40037-015-0205-9

Loades et al., 2020 – *Loades, M.E., Chatburn, E., Higson-Sweeney, N., Reynolds, S., Shafran, R., Brigden, A., … Crawley, E.* (2020). Rapid systematic review: the impact of social isolation and loneliness on the mental health of children and adolescents in the context of COVID-19. *Journal of the American Academy of Child & Adolescent Psychiatry.* 59(11): 1218-1239. DOI: https://doi.org/10.1016/j.jaac.2020.05.009

Merriam, Tisdell, 2015 – *Merriam, S.B., Tisdell, E. J.* (2015). Qualitative research: A guide to design and implementation. John Wiley & Sons.

Mindu et al., 2018 – *Mindu, T., Chimbari, M.J., Gunda, R.* (2018). A review of methodologies for research uptake in eco-health projects conducted in rural communities in Sub-Saharan Africa. Communicare-Journal for Communication Sciences in Southern Africa. 37(2): 66-91.

Nicholls, 2011 – *Nicholls, T.* (2011). Pedagogy of the privileged. *CLR James Journal.* 17(1): 10-36.

Paulus et al., 2021 – *Paulus, F.W., Moehler, E., Recktenwald, F., Albert, A., Mall, V.* (2021). Electronic Media and Early Childhood: A Review. *Klinische Padiatrie.* 233(4): 157-172. DOI: https://doi.org/10.1055/a-1335-4936

Prag, Casavant, 1994 – *Prag, J., Casavant, J.* (1994). An empirical study of the determinants of revenues and marketing expenditures in the motion picture industry. *Journal of Cultural Economics.* 18: 217-235. DOI: https://doi.org/10.1007/BF01080227

Sher, Su, 2019 – *Sher, S.T.H., Su, N.M.* (2019). Speedrunning for charity: How donations gather around a live streamed couch. *Proceedings of the ACM on Human-Computer Interaction.* 3(CSCW): 1-26.

Shrank et al., 2019 – *Shrank W.H., Rogstad T.L., Parekh, N.* (2019). Waste in the US Health Care System: Estimated Costs and Potential for Savings. *JAMA.* 322(15): 1501-1509. DOI: https://doi.org/10.1001/jama.2019.13978

Siehl et al., 2021 – *Siehl, S., Robjant, K., Crombach, A.* (2021). Systematic review and meta-analyses of the long-term efficacy of narrative exposure therapy for adults, children and perpetrators. *Psychotherapy research: journal of the Society for Psychotherapy Research.* 31(6): 695-710. DOI: https://doi.org/10.1080/10503307.2020.1847345

Silver, Slater, 2019 – *Silver, N., Slater, M.D.* (2019). A safe space for self-expansion: Attachment and motivation to engage and interact with the story world. *Journal of Social and Personal Relationships.* 36(11–12): 3492-3514.

Tokunaga, 2010 – *Tokunaga, R.S.* (2010). Following you home from school: a critical review and synthesis of research on cyberbullying victimization. *Computers in Human Behavior.* 26(3): 277-287.