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# «Prosuming» across Cultures: Youth Creating and Discussing Digital Media across Borders

«Prosumidores interculturales»: creación de medios digitales  
globales entre jóvenes

## ABSTRACT

The Scratch Online Community enables young people to share their creative digital projects internationally with a level of ease that was impossible only a few years ago. Like all creative communities, Scratch is not just a space for sharing products, work, techniques and tips and tricks, but also a space for social interaction. Media literacy educators have unprecedented challenges and opportunities in digital environments like Scratch to harness the vast amount of knowledge in the community to enhance students' learning. They also have challenges and opportunities to implement a form of digital media literacy education that is responsive to social and cultural representation. One role of digital media literacy is to help young people to challenge unfair and derogatory portrayals of people and to break down processes of social and cultural «othering» so that all community members feel included and safe to express themselves. This article considers how online community spaces like Scratch might draw on social interaction to enhance intercultural understandings and learning through dialogue and creative practice. The article uses statistics to indicate the amount of international interaction in the Scratch community. It then uses qualitative analysis of forum discussions to analyse the types of intercultural interaction that occurs.

## ABSTRACT (Spanish)

La «Scratch Online Community» permite a los jóvenes compartir sus proyectos digitales internacionalmente con una facilidad impensable años atrás. Como todas las comunidades creativas de este tipo, no es solo un espacio para compartir productos, trabajos, técnicas o consejos, sino también un espacio para la interacción social. Los educadores del ámbito de la alfabetización en los medios encuentran en estas iniciativas retos y oportunidades sin precedentes para aprovechar el volumen de conocimiento de la comunidad y promover el aprendizaje. Ofrece también oportunidades para implementar una forma de alfabetización digital sensible a la representación social y cultural. Una de las funciones de la alfabetización digital es ayudar a los jóvenes a cuestionar representaciones y a romper con procesos de otredad para que los miembros de la comunidad puedan expresarse e integrarse en esos contextos. Este artículo analiza cómo estas comunidades, a través de la interacción social, pueden impulsar el entendimiento intercultural y el aprendizaje a través del diálogo y la práctica creativa. El artículo incluye estadísticas para indicar la cantidad de interacción internacional en la comunidad que se analiza (Scratch). Asimismo, también incluye análisis cualitativos a partir de discusiones en el foro, con el fin de analizar los tipos de interacción intercultural que se llevan a cabo.

## KEYWORDS

Media, literacy, digital, production, education, cross-cultural, representation, youth.  
Medios de comunicación, alfabetización digital, producción, educación, interculturalidad, representación, jóvenes.

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One objective of digital media literacy is to foster intercultural understandings through capitalising on the potential of new media to challenge social, cultural and national boundaries (Castells, 1996; Benkler, 2006; Jenkins, 2006). Media literacy education has a long history of exploring intercultural concepts through its focus on the ways in which media represent people, places and ideas. For example, the academic field of Cultural Studies has influenced media literacy education through its focus on gender, ethnicity, class and national cultures (Williamson, 1990; Hall and Open University, 1997). In digital media contexts, this focus on representational issues becomes more complex and fluid due to new possibilities for individuals to interact with and use media. «Old media» forms such as cinema and television relied on centralisation for production and distribution and this often led to the reproduction of national cultures which are potentially homogeneous and mono-cultural (Bruns, 2008). Digital media are distributed, decentralised and individualised (Benkler, 2006) and have the potential to be more internationally collaborative and may foster intercultural knowledge and understanding. This article explores whether or not the Scratch Online Community, an online space for digital media production by children and young people, has been successful in promoting intercultural collaboration and understanding and how it might continue to evolve to achieve this objective to a greater extent.

### 1. Digital media literacies and intercultural understandings

Digital media literacy education combines established approaches to media literacy education with elements of information and communications technology education (Dezuanni 2010: 23-25). According to Buckingham and Domaille (2009), media literacy education has different objectives in different countries, but is typically underpinned by the goals of helping young people to become critically responsive when using media and to enable democratic participation with media through developing media production skills. The frameworks through which these goals are met also vary, but generally aim to develop the ability to «read» and «write» the media in both instrumental and critical ways. Students learn to critically analyse media texts to identify how they communicate their messages and circulate social and cultural norms through processes of representation. Students also critically analyse contexts such as the institutional influences on production and consumption and the ways in which audiences respond to media. They learn to

«write» media by learning media production skills and processes. Media literacy education for children and young people has become an established part of formal schooling in The United Kingdom, Canada, Australia, the Nordic countries and several other parts of the world. It has also become established in after school programs and through specialist projects internationally. In recent years, digital media technologies have expanded the focus of media literacy education to include areas that were previously the domain of information and communications technology education. In particular, aspects of multimedia education like video games production and digital animation, including programming, have begun to occur in media literacy classrooms (Dezuanni, 2009). The presence of social media has also led to an increased focus on ethical and safe practices in online spaces (Boyd, 2008). Digital media literacy education is a contemporary form of media literacy education that engages with the host of new media forms that young people increasingly use in their everyday lives.

Media literacy education has a long history of dealing with intercultural understandings and digital media contexts that provide educators with new opportunities to encourage young people to explore these concepts further. The media literacy education key area of «representation» has been significantly influenced by how the concept was developed and explored in the academic field of Cultural Studies (Hall and Open University, 1997; Williamson, 1990). The main objective of understanding the process of «representation» is to consider how cultural texts selectively construct people, places and ideas according to specific social and cultural norms. In media literacy classrooms, this usually involves analysing media texts to identify instances of stereotyping and distorted, unfair, derogatory or inaccurate portrayals. A concept closely associated with «representation» is that of «othering», theorised by Said in relation to cultural imperialism as a process of emphasising other people's perceived weaknesses in order to bolster the purported strengths of those in positions of authority (Said, 1985).

In digital media contexts, representational processes are complex because social media provide possibilities for individuals to represent themselves and to interact with «others» in ways that are often unavailable in the «offline» world. For example, individuals may meet people they would usually not interact with and this provides the dynamics for potentially new and more democratic forms of social interaction. Of course, social media spaces are not utopias in which social relations are free from the normative processes that

exist offline and theorists have shown that online interactions often reinforce offline social relationships (Boyd, 2008; Livingstone, 2009). Phenomena like cyberbullying and online hate groups suggest that social media spaces provide new possibilities for destructive as well as constructive and positive behaviour. The question, then, is how new media spaces may become spaces for a version of digital media literacy that provides young people with experiences that help them to challenge unfair and derogatory portrayals and that break down processes of «othering».

## 2. The Scratch Online Community

The Scratch website (figure 1), dubbed the «YouTube of programming» is an online community where young people share their own video games, animated stories, and interactive art (Monroy-Hernandez and Resnick 2008). Members of the Scratch online community, called «Scratchers» use the Scratch programming environment, developed by the Lifelong Kindergarten group at MIT, to program their digital artefacts by putting together blocks of code to control the interactions of visual objects and sounds (Resnick & al., 2009). Two and a half years after its release in 2007, more than 800,000 projects had been shared on the Scratch website. Projects range from physics simulations, to video games featuring Obama and McCain, to animated stories of singing cats. Every month, more than half a million people from around the world visit the Scratch website. There are more than

400,000 registered members, and 25% of them have shared a project. The vast majority of users are between 8 and 17 years old (self-reported), and there is an active minority of adults who often play the role of mentors.

People use the website not only to share their work but also to interact with other creators, exchange ideas, work on collaborative projects, and discuss their daily lives. A number of collaborative efforts have succeeded in creating dozens of projects in what Scratchers often refer to as «companies»; that is, a group of young people who co-create projects. The website is completely open: anyone can browse, download, and interact with people's projects, or register for an account to post their own. Participants are encouraged to download other people's projects to learn how they were created and reuse parts to create remixes; in fact, 28% of the projects are remixes. All projects are shared under a Creative Commons license. Registered members can tag, «love» and bookmark projects. Furthermore, in the spirit of popular online social networks such as Facebook, they can befriend other creators while maintaining the main goal of creating projects. The Scratch project has helped in fostering new media literacy by providing children and young people with the tools and the social environment to become full participants in the creation of digital culture.

This article explores the ways in which the Scratch Online community provides opportunities for users to experience difference, and therefore to develop intercultural understandings. Scratch and the Scratch Online Community are quintessential examples of a tool and space for developing digital media literacies that differ significantly from the opportunities provided by more traditional forms of media literacy education. Until relatively recently, media produced by young people in media literacy classrooms could only be shared and discussed with classmates, families and occasionally a slightly broader audience. Global media distribution was the domain of international corporations and international discussion amongst young people occurred via pen friend schemes and international exchange opportunities. Creativity-oriented online social networks like Scratch have completely changed this dynamic so that international sharing of youth produced media products and associated intercultural dialogue are becoming commonplace. This paper asks how Scratch can be used to enhance intercultural understanding and how the online space might be



Figure 1: Home page of the Scratch website, June 2011.

improved to encourage further productive and constructive intercultural dialogue and sharing of media productions.

### 3. Research questions and methods

This article initially aims to explore the types of intercultural exchange that currently occur within the Scratch Online environment. It asks where users are located, how often they share their work and how often people from other countries visit this work. These questions will be answered through reference to statistics generated directly from the database that holds information about registered Scratch Community members, the number of projects they create and visits to these projects. These statistics, however, are not able to answer other questions we have about the types of things Scratchers say to each other about their projects and the dialogue they might have about cultural topics and issues.

We would also like to know how the site proactively provides opportunities for intercultural exchange. In particular we want to answer the following questions: Does the Scratch Online Community actively encourage international participation and intercultural exchange? When sharing and discussing their work, do Scratch community members discuss issues related to ethnicity or culture? Does the Scratch community have strategies in place for ensuring that discussions about ethnicity and culture remain positive and productive?

Different qualitative methods are used in this paper to answer these questions. To explore conversations between community members about issues related to ethnicity and culture, and community strategies for ensuring positive conversations, a search of the site's online forum was conducted to locate examples of dialogue related to those topics. This approach has obvious limitations because it does not indicate the frequency of such conversations. However, in this article we aim to identify the types of conversations and responses that potentially occur in the community, rather than how often they occur.

To identify how the Scratch community currently encourages international participation and intercultural exchange and how it might implement further strategies to achieve this, Monroy-Hernandez draws on his experience as a participant observer in the Scratch Online Community. Monroy-Hernandez has been involved with the Scratch Online Community from its inception and was responsible for the conceptua-

lisation and development of the community. In this sense, aspects of the analysis are self-reflexive.

### 4. International participation in the Scratch Online Community

As of the 13<sup>th</sup> May, 2011 users of the Scratch Online community came from approximately 135 countries. These are on a continuum from highly technologized countries like the United States, The United Kingdom and Australia to countries like Zambia where there is little access to technology. An initiative of the Scratch development project was to make Scratch available on the One Laptop per Child (OLPC) low cost computer system, meaning that children and young people in some of the world's least technologized countries have access to the program. There is a great degree of variability in the number of users from each of these countries and the number of projects they produce. Table 1 provides a sense of the international scope of Scratch and its Online Community.

The number of individuals viewing and uploading content to Scratch from countries around the world suggests that it is a genuinely international phenomenon. It is a computer clubhouse on a global scale and its international take up shows that it has potential to be a cross cultural tool for the creative use of technology. Some of the site's affordances have led to its level of success internationally. For example, for users originating in Mexico and Israel, some of the sections of the home page are customized to make the experience more localised and available in Spanish and Hebrew. The US developers of Scratch have formed partnerships with collaborators in those countries to support

Country	Users	Projects
Australia	27,233	14,366
Bangladesh	1,060	105
China	7,572	4,120
Brazil	28,542	9,390
Egypt	1,229	118
Indonesia	2,421	222
Japan	4,409	2,771
Mexico	11,498	9,945
Pakistan	1,139	128
Peru	2,580	1,658
Russian Federation	3,337	1,550
Spain	6,747	6,749
Tajikistan	38	7
United States	308,781	489,947
Vietnam	2,066	568
Zambia	140	1

Table 1: A snapshot of some of the 135 countries from which Scratch users originate.

the development of the community there. Another sign of the international nature of Scratch is the «tag cloud» on the front of the Scratch Online Community website (figure 2), which shows the most popular words being used to tag projects in Scratch. These tags are frequently in languages other than English.

Another way to measure the level of international interaction on the site is to identify the number of international «visits» undertaken when individuals from one country visit projects uploaded by individuals from a different country.

Since the inception of the Flash Online Community, this has occurred 15,839,491 times. Table 2 shows how often this has occurred as of 13<sup>th</sup> May, 2011. The most common combination is for individuals to visit projects produced in their own country. However, there is a significant amount of international visitation. These figures are self-reported.

## 5. Dialogue about ethnicity and culture in the Scratch Online Community

Social interaction is a significant feature of the Scratch Online Community and in many ways the site functions as a social network. Users are able to leave comments about other users' work by making comments under the project's display area. Producers can add «Project Notes» to give a description about what they are trying to achieve and often use this space to respond to the comments made by other users. Users can also take part in discussions in dedicated forum spaces. To give an indication of the level of engagement on these forums, as of June 3<sup>rd</sup>, 2011 there were 2288 topics and 18538 posts in the «New Scratch Members» forum and in «Advanced Topics» there were 2923 topics with



Figure 2: Scratch Online Community Tag Cloud showing international participation.

46386 posts. Forums are also available in 12 languages other than English: German, Spanish, French, Italian, Chinese, Greek, Portuguese, Norwegian, Dutch, Turkish and Polish. There are also 117 topics and 1191 posts in a forum for «other languages». These forums are central to the social nature of the Scratch Online Community and a multitude of topics are discussed in this space.

The international nature of Scratch and the combination of opportunities for creativity and social interaction provide a unique space in which intercultural exchange

can occur through the development of digital media literacy that is responsive to social and ethical issues. The forums and other features of the Scratch Online Community enable the combination of multimedia creativity and social interaction. The technical and creative aspects of digital media literacy are developed as Scratchers work on their projects and seek assistance from other members of the community as well as their «offline» teachers and mentors. In this context, scratchers are just as likely to learn from someone in another country as they are from a person sitting next to them. Scratchers also learn to respond to other users' feedback about the content of their productions

Country of origin	Destination	Times	Country of origin	Destination	Times
United States	US	9,122,454	United States	DE	44,421
United States	GB	657,275	Germany	US	49,200
United Kingdom	GB	61,8521	Netherlands	US	48,498
United Kingdom	US	560,654	Canada	GB	41,649
Canada	US	330,781	Ireland	US	38,096
United States	CA	305,770	United Kingdom	AU	36,969
Canada	CA	229,313	Taiwan	TW	36,246
United States	AU	197,200	United Kingdom	CA	35,987
Australia	US	160,470	Korea, Republic of	US	35,802
Antarctica*	US	157,254	Italy	US	32,650
Thailand	TH	129,104	Hong Kong	HK	32,600
Christmas Island	US	128,136	France	US	32,222
Australia	AU	118,323	Mexico	MX	28,876
Japan	US	112,436	Brazil	US	27,172
United States	NZ	94,897	United States	IE	27,116
New Zealand	US	79,533	United States	BR	27,020
New Zealand	NZ	58,048	Australia	GB	25,604
Korea, Republic of	KR	53,156	Brazil	BR	25,541
Germany	DE	51,139			

Table 2: The number of «visits» to Scratch projects by international origin and destination.

\* The numbers for Antarctica are inflated as users select their country from a drop down menu and Antarctica is the first country listed.

and this relates to both their creativity and the socio-cultural implications of their productions. Where projects or comments are potentially offensive, hurtful, unfair or work to «other» members of the community, the community is potentially a space for teaching and learning through intercultural exchange. The claim being made here is not that the Scratch community will always positively respond to negative processes of representation. Rather, the claim is that the community provides an opportunity to respond to harmful representations, just as any media literacy classroom can. The following forum exchange provides an example of how the Scratch Online Community potentially acts to develop socially responsive digital media literacy. Note that the user names have been altered and some of the text has been changed to protect the identities of the Scratchers involved:

— «Hello everybody. I'm here to discuss the foreign Scratchers from countries like Japan, Indonesia, and other non-English speaking countries. Now, I'm not trying to be racist but it seems that some scratchers don't understand some things. It seems that they haven't gotten the idea like that you can draw things, and (no offence) everything doesn't have to bounce around. I wish there was a way to convert what they say also. I'm not trying to be offensive at all, I just wanted to see if there is a way to change it for them. I think also we should try to recognize them, and help them. Thanks!» (MickeyMantle1234: Scratcher. Posts: 4).

— «Hi MickeyMantle1234. Scratch is a diverse community where people of all different backgrounds can come to collaborate and share projects and ideas. Many Scratchers aren't from English-speaking countries – in fact, there are whole galleries of projects dedicated to specific languages and cultures. To you, these Scratchers are foreign, but Scratch is a global community, not an American one. I know you might not have meant any harm, but I think many «foreign» users might be offended by the idea that they just don't get Scratch the same way we do. [...] Just make sure you remain respectful of everyone; you might have something to teach them, but you can also learn something from them as well» (Halfmoon: Community Moderator. Posts: 1802).

— «Also, please understand that Scratch is used in a lot of schools in other countries - often in beginning programming classes where everybody is following along with the teacher. So you might see 30 projects suddenly show up on Scratch all doing basically the same simple action, such as a bouncing ball or a talking Scratch cat. This can leave you with the impression

that people from other countries only do very basic projects. But that's not necessarily the case... it's just that they often have large classrooms of kids all doing simple projects at school. Treat others as you would like to be treated» (Paddlesteamer: Scratch Team. Posts: 6327).

— «Yeah totally. I absolutely was not trying to offend them at all. I was just trying to help» (MickeyMantle1234: Scratcher. Posts: 4).

In this exchange, a new Scratcher (4 forum posts – MickeyMantle1234) positions non-English speaking members of the community as «other» by representing them as «foreigners» and by suggesting they are less able to use Scratch. S/he seems frustrated that it is not possible to understand what the non-English speaking Scratchers are saying and that their skill levels seem low. MickeyMantle1234's frustration seems to come from how difficult it is to help the «foreign» Scratchers when they do not share a common language. However, the assumptions underlying the comments are problematic, as pointed out by a community moderator and Scratch team member. MickeyMantle1234 has placed him/herself at the centre of the Scratch Online Community, assuming that English should be the dominant language of the site. While this individual wants to help, it is through the process of making it more possible for «them» to interact with «us». This works very much in the manner of Edward Said's processes of «othering», with an attempt to position non-English speakers as inferior, less intelligent and in need of help (1985).

Experienced members of the Scratch community, the moderator (1802 posts) and Scratch team member (6327 posts) identify this as a «teachable moment» related to intercultural understanding. Their responses aim to reinforce a community norm for the Scratch Online Community that does not tolerate «othering» and in which people from all ethnicities and nationalities feel welcome and supported. There are some interesting contrasts with the ways in which teaching and learning about representation and «othering» have occurred in this instance when compared to more traditional media literacy approaches. It has long been the practice in media literacy education for teaching and learning about concepts like representation to occur as part of «theory» lessons. When the concepts have been learnt, it is assumed that students will then be able to apply these to their own productions (Buckingham, 1995). This approach is exemplified in approaches to media education like the «demystification» during the 1990s which placed emphasis on revealing hidden messages in media and which were

suspicious of classroom production on the basis that it was likely to teach students to simply reinforce dominant ideologies (Masterman, 1990). Buckingham and others have challenged the separation of theory and practice, suggesting the two need to work together to provide students with personally meaningful learning experiences (Buckingham, 2003; Burn, 2009). The example provided here illustrates that the social context of digital media environments makes it essential that «theory» and «practice» not be separated. The response of the Scratch «elders» to MickeyMantle1234's comments, and MickeyMantle1234's apparent willingness to accept the community's norms (via his final comment) show that social interaction in online spaces has great educational potential to achieve many of the goals of media literacy education related to social and cultural beliefs and values.

This is further reinforced by another example that shows that it is not just the Scratch «gatekeepers» or «elders» who establish these social and cultural expectations in the Scratch Online Community. In the following exchange community members act to establish norms that promote diversity. A Swedish Scratcher outlines some information about her/his country and then invites other Scratchers to share information about their countries, as a form of intercultural exchange of knowledge and information. When a Scratcher aims to undermine this by making provocative (albeit ostensibly humorous) comments about American superiority, the other Scratchers quickly re-establish a norm of diversity and tolerance:

— It would be fun, and you can learn about other countries. Sweden (Sverige in Swedish). Capital: Stockholm. Inhabitants: About nine million. Climate: Pretty cold, and much snow in the north, quite mild in the south. School is mandatory from the age of seven, you go to «ground school» until the age of sixteen when you go to «Gymnasium» (Not mandatory), then you go to university. You don't have to pay to go to any school, including gymnasium and university. Form of government: Constitutional monarchy. Typical Swedish thing: Swedish meatballs and unpacked candy in stores. Famous Swedes: ABBA (band), Björn Borg (tennis player), Ingmar Bergman (Film maker), Astrid Lindgren (Children's book author most known for Pippi Longstocking), Ingvard Kamprard (Started IKEA) and the Swedish chef in the muppets show. Now tell me about your country (Waycool: Scratcher. Posts: 1835).

— Well i'm Vietnamese but born in the USA so I'm a citizen. The capital is-Saigon. The Signature dish of Vietnamese culture is Pho (pronounced Phuh) Pho is

vietnamese noodle soup. Government-Communist... but doesn't mean in Communist!... If you want to find more then search on Wikipedia Happy New Year! (ScratchY: Scratcher. Posts: 2773).

— America We is the rulers of the world!!!! Not really. We have around 300 million people. We have great films, tv shows, not presidents...School is good. Grades One-Five in elementary school, Six-Eight or Nine in Middle and grades Nine or Ten through Twelve in High school. We then go to college/university. California rocks with its govenator. Too bad I don't live there now. (TheAngel: Scratcher. Posts: 2960).

Of course we rule the world (Blockhead: Scratcher. Posts: 131).

— Please don't say things that are offensive to others especially to people from different countries. Thank-you (ScratchY: Scratcher. Posts: 2773).

— Good point! - I don't care if they say that, but some might find it offensive (Waycool: Scratcher. Posts: 1835).

— «I find it just plain arrogant. I have a billion comments about that statement but I'm going to keep them in» (XYZ1234: Scratcher. Posts: 3957).

— «I just find it sad. Its depressing that the stereotype for America is arrogant, fat and cruel. That plays into it. Although I did start that. I hope everyone took it as a joke...\*Goes to put smileys next to sentences\* (TheAngel: Scratcher. Posts: 2960).

These posts are outtakes from a much longer series in which other Scratchers discuss their countries, home cities, towns and provinces or States and topics like local food and customs. The overall sequence is an exemplary illustration of the ways in which the Scratch Online Community is a space where intercultural understandings are developed. It also illustrates the ways in which the norms established within the community may be upheld by community members without the intervention of community moderators. In this exchange, the reference to Americans being «Rulers of the World» aims to establish a norm that reflects those established within popular culture, particularly through Hollywood. This is a norm of American superiority and dominance and one that positions international cultures as inferior. The Angel's reference to Hollywood and the Governor (former California Governor, Arnold Schwarzenegger) provides an opportunity for Blockhead –this is a pseudonym, but very close to the name chosen by this Scratcher– to repeat the norm of American dominance in an unambiguous fashion. This works to dismiss the discussion around cultural diversity and local

identities or to reduce it to a topic for humour. However, the Scratchers who began the discussion are unwilling to allow their dialogue to be undermined and re-establish the norm of tolerance. XYZ1234's response illustrates how passionate some members of the community are about defending diversity of opinion. It is interesting that while The Angel shows willingness to remain part of the discussion, Blockhead falls silent in the thread. This exchange is another example of how education about intercultural understanding has been supported in the Scratch online community.

The claim here is not that exchanges like this are inevitable, frequent or always be positive. Rather, the claim is that the Scratch Online Community provides the opportunity for these types of exchanges to occur and that the norms of tolerance and diversity established within the community by its moderators makes it more likely that these values will be accepted and defended by community members. Further analysis, however, would need to occur for this claim to be substantiated.

## 6. Conclusion

The Scratch Online community is a space for digital media literacy that provides opportunities for teaching and learning that go beyond the usual capacity of traditional media literacy. The Scratch community is a space that increases the potential for intercultural participation while it expands users' new media production skills and creativity. At the same time, users have the opportunity to interact across cultural and geographic boundaries in socially acceptable ways that celebrate diversity. This is not to say that traditional media literacy does not still have a great deal to offer digital media literacy education. Instead, this article argues that the version of digital media literacy made possible by Scratch goes beyond learning how to access, use and create media. It is also possible to draw on the important objective from traditional media literacy that aims to help children and young people respond to social and cultural issues like intercultural understanding in a critical way.

The examples provided in this article point to participation in Scratch and similar communities as a safe space for intercultural exchange. The challenge for media literacy educators and the Scratch production team is to consider how opportunities for social and cultural learning can best be harnessed to meet the

objectives of this extended definition of digital media literacy.

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