

Barriers to Knowing and Being Known: Constructions of (In)competence in Research

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In this paper, we examine the barriers to, and possibilities of, recognizing individuals labelled intellectually disabled as producers and contributors to knowledge about their experiences. Through engaging perspectives within the fields of philosophy of education and disability studies, we examine contrasting research about the use of facilitated communication, an augmentative and alternative communication technique for teaching people with disabilities to communicate through pointing, or typing with support provided by a communication partner. We examine how researchers impose demands for the scientific validation of facilitated communication and use such demands to discredit autistic people identified with intellectual disabilities in their attempts to be recognized as knowers and producers of knowledge. Our analysis calls into question whether self-imposed limitations on contemporary knowledge production render educational research (in)capable of accepting forms of evidence that will facilitate the agency of those labelled or regarded as intellectually disabled and (in)capable of providing consumers of educational research access to knowledge that reflects the wide range of communicative, neurocognitive, and intellectual diversity in schools and communities.

Introduction

In an ideal world these questions would not need to be asked because a diagnosis of autism would not lead to branding a person as less than or inferior. Those who cannot speak or who have limited speech would not immediately be labeled “intellectually disabled” and “low functioning.” We would live in a society that would embrace diversity and welcome all people, regardless of race, culture, religion, neurology or disability. Our education system mirrors our society and in both, we come up short. (Zurcher-Long, 2019, p. 135)

Communication is a fundamental human right. Yet for individuals who do not use speech to be understood, access to communication is often tenuous. An inability to speak has often been equated with an inability to think. Such presumptions of incompetence are based on assumptions that uncritically privilege speech as a preferred mode of communication and expected means through which competence is demonstrated. In educational research and practice, people are commonly judged as un/intelligent based on the ways that they communicate. Cultural constructions of what intelligence looks and sounds like have contributed to the tendency for those who deviate from constructed norms of communication to be pushed to the margins of knowledge production, and to educational contexts with low expectations for academic achievement and social participation. Judgements of incompetence towards those who do not speak to communicate constitute ableism, or a form of prejudicial belief that unduly views disability as a deficit, often in comparison to culturally constructed ideas of normalcy (Ashby, 2010; Baglieri & Lalvani, 2019). Though self-advocates, scholars, activists, and allies have

worked to highlight the inaccuracy of assumptions about people's competence based on their means of communication, a propensity for individuals' intelligence to be judged based on their communication persists and contributes to misunderstandings about their lived experiences.

This tendency to equate communicative competence with intellectual ability is particularly true of communication needs associated with disability labels that have historically been associated with measures of intelligence, such as autism or other intellectual and developmental disabilities. As Emma Zurcher-Long, an activist, writer, and public speaker who types to communicate, reminds us, conceptions of autism, intellectual disability, and access to communication are intertwined and impact one another. Autistic¹ people who do not use speech as their preferred or most effective communication method are often labelled or regarded as intellectually disabled. This occurs formally through diagnostic assessments that rely on forms of communication, neurocognitive expression, motor planning, and behaviour that hinder the performance of some autistic individuals on assessments, therefore rendering them less likely to be regarded as intelligent (Courchesne, et al., 2015).

The use and results of such assessments make it seem as if intellectual disability is a discrete entity that people *have*. Yet, as Kliewer, Biklen and Petersen (2015) argue, intellectual disability is better understood as a metaphor for a global deficit in intelligence, a construct derived from and reinforced by the tests which claim to assess it. Constructions of intelligence are also upheld socially and culturally through normative expectations for behaviour and communication. These constructs, as Biklen and Kliewer (2006) note, are what we have made of them. The interconnected perceptions of autism, communication, and competence often render nonspeaking autistic people to be regarded as “disabled-minded,” particularly in the absence of communication access or a shared understanding of alternative and non-spoken forms of communication. As Taylor (2021) notes, “To treat someone as disabled-minded is to treat them as globally deficient in their capacity as a knower, and to treat that deficiency as arising from some objectively real fact about that person, rather than as a consequence of their social positioning.” Disabled-mindedness both “enables and rationalizes the treatment of labelled people as outside the community of knowers” (ibid., 2021). As we will argue in this paper, nonspeaking autistic peoples' positioning as disabled-minded constitutes a form of prejudice that is used as a basis for invalidating the method through which some access communication, and ultimately to dismiss their contributions to knowledge about their own experiences.

Facilitated communication (FC) is a technique that involves teaching people who do not use speech reliably and who have movement differences to communicate by pointing, or typing with support provided by a communication partner, or facilitator (Biklen & Cardinal, 1997; Crossley, 1994). FC involves a combination of physical, emotional, and communicative support provided to an individual (i.e., the person typing) by a trained facilitator, also known as a communication partner (Crossley, 1994; Institute on Communication and Inclusion, 2000). In addition to verbal encouragement and prompts, supports provided by a facilitator may involve proprioceptive feedback in the form of backwards resistance to support stabilization, reduce impulsive movement, and/or support initiation. FC is fluid and progressive, with the goal of faded support and increased independence (Institute on Communication and Inclusion, 2000). Some people who have used FC have attained increased levels of independence and exert agency over their lives (Rossetti, et al., 2008; Rubin, et al., 2001), including learning to type without any physical support from a facilitator (Ashby, et al., 2015; Rubin, et al., 2001). Some have developed the ability to read aloud their typed text and/or engage in short spoken conversations (Broderick & Kasa-Hendrickson, 2001; Kasa-Hendrickson, Broderick, &

¹ Language is an important and powerful choice. We intentionally use identity-first language to honour and affirm autistic identity and the preferences of many in the autistic community (Bottema-Beutel, et al., 2021).

Hanson, 2009). Others have been able to gain increased access to education, with some progressing to higher education (Ashby & Causton-Theoharis, 2012; Bennett, 2011; Biklen & Burke, 2006; McKee & Gomez, 2020; Peña, 2019).

Yet, FC remains controversial and has been dismissed by several researchers as pseudoscientific, with many of the studies cited above dismissed as unacceptable evidence. These researchers' critiques of FC are rooted in a series of early studies that used controlled message-passing conditions to assess the authenticity of communication produced with the support of a facilitator (e.g., Bebkö, Perry, & Bryson, 1996; Bomba, et al., 1996; Eberlin, et al., 1993; Shane & Kearns, 1994; Wheeler, et al., 1993). These studies failed to consistently prove that people using FC were authoring their own messages and some suggested instead that the facilitator was inadvertently influencing messages while providing physical support. The possibility of facilitator influence found in these early research studies draws into question whether the communication resulting from FC represents the actual thoughts and intentions of those who use the method, particularly under those testing conditions. Importantly, some critics of FC draw on the results of such message-passing studies to claim that FC *always* produces inauthentic communication and therefore is *universally* harmful to the lives of any individuals who use FC (Travers, Tincani, & Lang, 2014). These totalizing dismissals persist despite evidence from research using other methodologies and in other published media.

The leap from extrapolation of results from research studies to outright dismissal of the authenticity of communication from all users of FC poses dangers of its own. Critics not only argue that FC is not scientifically valid, but they are also aghast that anyone, anywhere, continues to have access to FC, and advocate that FC should cease to be offered as an option for communication support (Lilienfeld, et al., 2015; Travers, 2017, Wombles, 2014). The pushback against FC has in fact resulted in limiting access to the associated communication supports for students with disabilities, who already face limited options for communication access (Bennett, 2011). Advocacy against people having access to FC as an option for communication support is of particular concern given that those who have learned to communicate through FC have called into question assumptions about their capacity to think and the very nature of perceptions of autism and intellectual disability. Reflecting these experiences, an increasing focus on sensorimotor differences is gradually shifting understandings of the autistic experience away from a behavioural lens grounded in constructions of intellectual disability and neurotypical behaviours, to account for the role of movement, sensory, stress, and neurocognitive diversity that is both difficult to observe and may influence people's performance, for example when they type to communicate (Donnellan, Hill, & Leary, 2013). Through the use of FC, individuals with limited or unreliable speech have demonstrated complex thoughts that exceed the intellectual capacity with which they were initially judged. Further, they have challenged the assumption that those who think, move, sense, and communicate in neurodivergent ways cannot be knowers, or knowledge producers (Biklen & Burke, 2006; Kliever, Biklen, & Petersen, 2015). To deny the use of FC and dismiss the authenticity of those who type to communicate may restrict access to the very tools and resources which some people might use to defy the deficit-based assumptions through which they are described in research and wider society.

In this paper, we analyze arguments from researchers in education and social sciences who dismiss the use of FC and deny the authorship of persons typing, on the grounds that FC has been determined to be a scientifically invalid practice. Our purpose is to demonstrate how some researchers invoke self-imposed conditions for producing knowledge to place limits on what counts as evidence, and in doing so, eclipse other documented evidence about autism, intelligence, and communication, as well as the lived experiences and contributions of nonspeaking autistic people who type to communicate. To do so, we examine critiques of FC and of the testimony made by those who type to communicate. We consider how researchers' demands for narrow criteria to validate FC limits the acceptable methodological processes that could and do yield evidence about its impact. We further examine how demands for scientific validation of individuals' communication serve as a prerequisite to believing that their thoughts are their own, thus providing a rationale to discredit autistic people who type to communicate in their attempts to be recognized as knowers and producers of knowledge.

We draw on Fricker's (2007) work on epistemic injustice and Taylor's (2018) work on epistemic agency to argue that the dismissal of FC and research by, and about, people who type to communicate, perpetuates epistemic injustice by 1) denying the agency of nonspeaking autistic people and hindering their participation in producing knowledge, and 2) impacting the potential for others who are similarly situated to access future communication. We first examine the epistemological orientation towards empiricism in special education research, which serves as the foundation for dismissing the testimony of individuals who use FC and contributes to a continued gap in collective understanding about autism, intelligence, and communication. Then, we examine how researchers use a commitment to a specific kind of scientific validation to ground their dismissal of research of and by those who use FC. Finally, we consider the notion of presuming competence as a potential corrective virtue for addressing prejudicial judgements of credibility faced by nonspeaking autistic people. We examine critiques of the presumption of competence that invoke demands for empirical scientific validation, and consider how such demands may further limit the already diminished opportunities for nonspeaking autistic people who use, or could use, FC as a means to access communication and contribute knowledge about their lives.

Epistemic Injustice: Denying the Agency of People Who Type to Communicate

In philosophy, work on epistemic injustice examines how social groups are denied access to contributing knowledge about social institutions when their testimony is denied credibility and they are systematically excluded from knowledge production due to aspects of their social identity (Taylor, 2018). As Fricker (2007) notes, "any epistemic injustice wrongs a speaker² in his capacity as a subject of knowledge and thus in a capacity essential to human value" (p. 5). Thus, as Taylor (2018) has argued, epistemic injustices undermine individuals' ability to enact epistemic agency – or to create and convey knowledge – particularly in academic research about and related to their lives. Fricker (2007) describes two distinct types of epistemic injustice: testimonial injustice, in which in which prejudice yields a denial of a communicator's testimonial credibility by a hearer³ (i.e., a recipient of communication), and hermeneutical injustice, in which there is a gap in interpretative resources used to make social experiences known within the collective understanding.

Fricker (*ibid.*) describes testimonial injustice as prejudice against a person, owing to their identity, that wrongs them in their capacity to be heard by another. Testimonial injustice commonly occurs when prejudice leads one to judge another's credibility at a deficit, undermining the person's capacity for reason and to give knowledge. Judging another's testimony at a deficit occurs not only as a result of conscious discriminatory beliefs, but from the subtle influence of "identity prejudice," discrimination based on the social identity of the person (*ibid.*, p. 27). We argue that in the case of facilitated communication, this identity prejudice rests on ableist constructions of communication and conceptions of disabled-mindedness (Taylor, 2021). The consequences of testimonial injustice involves knowledge that is conveyed not being received, knowledge makers not being regarded as such, and the potential for the inhibition of self-development.

Fricker (2007) describes another form of epistemic injustice – hermeneutical injustice – as "the injustice of having some significant area of one's social experience obscured from collective understanding owing to a structural identity prejudice in the collective hermeneutical resources" (p. 155). The potential for hermeneutical injustice arises when there are insufficient resources for interpreting the testimony of social groups, without the interference of prejudice having to do with judgements of credibility. Fricker (*ibid.*) argues that judgements of credibility deficits can rise to the

² We interpret "speaker" in this work broadly to represent all of the diverse and varied ways that people communicate.

³ We interpret "hearer" in this work broadly to represent all the diverse and varies ways that people receive communication.

level of hermeneutical injustice when there is a gap in the resources needed to allow a marginalized group to be heard (i.e., to contribute knowledge about their experiences).

In the following sections, we apply Fricker's forms of epistemic injustice to examine the conditions for knowledge production within educational research and judgements about the credibility of people who use FC to convey knowledge about their experiences as nonspeaking autistic people. As we will discuss, in the case of FC, researchers' commitment to a specific type of scientific validation as a prerequisite to believing the testimony of individuals who use FC creates a gap in hermeneutical resources, constituting a hermeneutical injustice. Additionally, research about FC includes making judgements about the credibility of the testimony of those who type to communicate. Making judgements about the credibility of testimony is necessary and not inherently harmful. Yet, a deliberate choice has been made among researchers to limit the conditions that might allow testimony to be "heard." We argue that dismissal of the testimony of those who type to communicate on the basis that they do not meet those conditions, constitutes a form of testimonial injustice. We draw on examples of both types of epistemic injustice to understand the ways in which some arguments about FC obscure the epistemic agency of people who type to communicate through denials of credibility that hinge on and perpetuate hermeneutical gaps in collective resources.

The Self-imposed Limitations of Education Research

There are not many of us [people who type to communicate] in academia. Our stories and experiences might be dismissed as "just anecdotes" but this how we experience our progress, the changes FC brings to our lives, the day-to-day message-passing that we don't need to record, report or have validated by every single Very Important Person, usually privileged, non-disabled people, who call themselves "experts." (Sequenzia, 2015)

In the above quote, Amy Sequenzia (2015), an activist and author who types to communicate, highlights how people who type to communicate using FC are subject to having their experiences and communication dismissed by researchers. Sequenzia refers to how critics of FC view knowledge produced by individuals who type to communicate as "just anecdotes," as opposed to legitimate evidence that can inform knowledge about FC and those who use it. Sequenzia's concerns are those of marginalization from knowledge production, or what Fricker (2007) refers to as hermeneutical marginalization. Compared to those who Sequenzia refers to as "Very Important People" – mostly nondisabled researchers who hold status as experts – people who use FC have limited influence and participation in practices which could contribute to knowledge about the communication of individuals labelled with intellectual and developmental disabilities who do not use speech to communicate. As Fricker (ibid.) argues, marginalization from participation in the spread of knowledge is often the result of conditions that create a gap in the resources needed for a social group to render their experiences intelligible – and we would add in the case of FC, legitimate.

Sequenzia draws attention to epistemological conditions that facilitate the hermeneutical marginalization of people who use FC: the standard imposed on people who type to communicate to have their communication validated under certain conditions before their voices and experiences can be deemed authentic. Researchers critical of FC insist that testing using controlled message passing provides the only satisfactory conditions for proving the authorship of a person typing (Hemsley, et al., 2018). These message-passing conditions involve tasks that require individuals who type to communicate to pass information unknown to their facilitator, often in instances in which typer and facilitator are unaware of whether they are seeing the same or different prompts. Other researchers and individuals who type to communicate have critiqued and demonstrated the barriers of the conditions of message-passing studies, namely that they may not account for differences in the relationship and training between facilitator and typer, nor the anxiety produced during unfamiliar, evaluative tasks, and the effect of these factors on the outcome of the research (Cardinal, Hanson, & Wakeham, 1996; Marcus & Shevin, 1997). In fact, when these methodological issues have been corrected for, some message-passing studies have demonstrated authenticity of communication through such tasks

(Cardinal, Hanson, & Wakeham, 1996; Sheehan & Matuoizzi, 1996; Weiss, Wagner, & Bauman, 1996). Further, other methodologies, such as eye tracking (Grayson, et al., 2012), lexical analysis of typed text (Tuzzi, 2009), and development of speech during typing (Broderick & Kasa-Hendrickson, 2001; Kasa-Hendrickson, Broderick, & Hanson, 2009) have provided evidence to validate typed communication and to understand the influence that sensory and movement differences have on those who do or could use FC (Donnellan, Hill, & Leary, 2013). This work has raised tensions around interpreting performance on controlled tests as indicators of competence (Emerson, Grayson, & Griffiths, 2001). Yet the findings of these studies are not considered scientifically valid by critics of FC because the research methods do not rely on controlled message-passing tasks (Hemsley, et al., 2018).

Validating FC through message passing is a self-imposed requirement that aligns with a commitment towards empiricism in special education research and which limits the types of data that could provide evidence about the use of FC. Some researchers who have critiqued the use of FC as pseudoscientific have done so on the grounds that it does not meet the criteria of a scientifically valid and evidence-based practice (e.g., Mostert, 2014; Travers, 2017). Travers (2017) describes an evidence-based practice as “an intervention that is more likely to confer benefit than an unproven intervention because it has been subjected to the most stringent scientific tests currently available” (p. 196). An evidence-based practice framework in special education has emerged following calls to orient the field towards empiricism in research, what Kauffman and Sasso (2006) describe as a “dedication to finding a single truth as objectively as possible” (p. 111). Disability studies scholars, such as Gallagher (2004; 2006), have questioned the possibility of finding objective truths in researching disability and education practices, on the grounds that theory and research procedures are never value free, and that the very disability categories used to group and study people are themselves subjective. Nevertheless, the empirically based framework of evidenced-based practices has become the predominant epistemological orientation in the field of special education research. For example, the Council for Exceptional Children (Cook, et al., 2014), the largest professional organization for special education in the United States, uses evidenced-based practices as the standard for choosing effective practices, thereby limiting acceptable evidence to quantitative research. Qualitative research is not mentioned, as it does not fit within the guidelines or criteria of evidenced-based practices.

It is important to recognize that the criteria for validating communication advocated by some researchers is not inevitable, but self-imposed, and then extrapolated to cast doubt about the testimony of all people who type to communicate. The fact that FC users have not consistently demonstrated authorship under message-passing conditions, coupled with early findings indicating the potential for facilitator influence on messages under those conditions, is taken to mean that anyone who uses FC must not be authoring their own ideas. Travers (2017) further argues that, given that FC has been deemed ineffective according to this kind of scientific testing, it is unethical to teach people to use FC. Travers, et al. (2014) go as far as to claim that “FC is unequivocally and universally damaging to people with disabilities individually and as a group” (p. 196), a claim that, ironically, has not (and almost certainly cannot) be empirically verified. Thus, researchers draw on a commitment to scientific validation as grounds for judging the authenticity of communication produced by individuals who type to communicate, and making recommendations for whether they should have access to FC at all. Such conclusions reflect a concern raised by Danforth (1997) that a singular commitment to empirical science in special education research could unduly limit educational practices by imposing a standard that practices should be chosen only after being scientifically verified.

Researchers have further used self-imposed criteria for validating FC as the basis for dismissing research that informs how and if FC is used. For example, Hemsley, et al. (2018) conducted a systematic review of FC studies from 2014 to 2018. The authors found three recent qualitative research studies (Ashby, et al., 2015; Wilson, et al., 2014; Woodfield, Jung, & Ashby, 2014), but excluded them on the grounds that their review was limited to identifying studies that first tested message passing. Findings of the excluded research studies offer insights into the practice of, and skills required for, fading support (Ashby, et al., 2015; Wilson, et al., 2014); training new facilitators (Woodfield, Jung, & Ashby, 2014); and nuances of conditions under which independence is possible (Ashby, et al., 2015). Each of these studies included data from produced by people who type to communicate. Because these

studies did not first validate authorship using a controlled message-passing test, they were dismissed from contributing to knowledge about FC.

Another example of how contributions to knowledge are obscured from the collective understanding about autism and communication is by discrediting as evidence research that cites qualitative data from people who type or spell to communicate. Vyse, et al. (2019) questioned the conclusions of an article by Jaswal and Akhtar (2019) on the grounds that the authors included quotations and citations from individuals who use FC and rapid prompting method (RPM), a related methodology used to teach access to spelling for education and communication. Jaswal and Akhtar (2019) argued that their findings should question the assumption in psychology that autism is a deficit in social motivation. However, Vyse, et al. (2019) asserted that because the authors used quotes from individuals who use FC and RPM to communicate as evidence in their research, “the credibility of their arguments is seriously compromised” (para 1). Such exclusions are of particular consequence given that past evidence from qualitative research has pointed to potential flaws in the very conditions critics suggest for testing FC, and has contributed knowledge about the experiences of people who do type to communicate. Cardinal and Falvey (2014) point out that research in the decades since early message-passing studies has revealed a pattern of more naturalistic, qualitative studies (over 100) and fewer quantitative studies (approximately 40). They note:

This may demonstrate that researchers have come to recognize that they learn much more about the process of FC through qualitative, as compared with quantitative research. Where nearly all quantitative research has been focused on the efficacy of FC, research using qualitative methods of inquiry have focused more on the systematic development of the method, searching for what works best, for whom and the conditions thereof.” (p. 190)

Yet, within the self-imposed criteria of scientific validation, qualitative research is not recognized as evidence. Williams (2020) argues that the dismissal of qualitative research as amounting to anecdotes, rather than legitimate evidence in support of FC, relies on “rhetorics of evacuation” that take away from the experiences, possibilities, and tensions raised by people who have learned to type to communicate through FC (p. 222). A salient consequence of such evacuation is to perpetuate the “literate invisibility” of people who type to communicate, by discounting the very evidence that would demand an acknowledgment of their literacy (Kliwer, Biklen, & Kasa-Hendrickson, 2006, p. 167).

Claims about FC as being a “pseudoscientific treatment” (Tostanoski, et al., 2014, p. 220), “therapeutic quackery” (Travers & Ayers, 2015, p. 371), and a “fad treatment” (Wombles, 2014, p. 181), are thus made possible by systematically discounting certain forms of evidence, and lived experiences, that support the use of FC. We argue that the self-imposed conditions set by researchers to justify evacuating from, or willfully disregarding, the knowledge produced by individuals who use FC rises to the level of perpetuating hermeneutical injustice. People who type to communicate have a vested interest in having their voices heard, yet their attempts to communicate knowledge about their experiences are dismissed, owing to a lack of resources in the current conditions of knowledge production that would allow their communication to be rendered intelligible. These injustices grow out of and perpetuate the hermeneutical gap in resources available to understand the experiences and possibilities of nonspeaking autistic people.

In the next section, we examine how researchers use a self-imposed standard for scientifically validated communication as a means to delegitimize the published testimony of autistic people who type to communicate. We argue that a denial of the testimony of individuals who type to communicate constitutes epistemic injustice that limits options for communication access of current and future autistic people who do not use speech to communicate, and discounts evidence that challenges ableist constructions of intelligence, competence, and disability.

Epistemic Injustice in Denying the Credibility of Testimony

I am so ready to let the world know that they are all wrong about autism. Yes, I am autistic. It's a part of me. A hard way to be in this world with a certain perspective. Many people dread the idea that we could actually exist in many numbers, because no one visualizes us this way, with thinking minds intact. Having a voice leaves hard questions for people to answer. People do not want to think that they have been so wrong for so long, which makes it hard to really see me, and others like me. Day in and day out I deal with all of these challenges. Believe me, I get it why people have such a hard time with this. All I ask is that you try to have an open mind to ideas that defy existing ones. (Barmache, 2019, p. 95)

To “have an open mind to ideas that defy existing ones,” as Dillan Barmache, an advocate and author who types to communicate, urges, requires a critical evaluation of the questions being asked and the methods used to answer them. In contrast to special education scholars who situate their work within the paradigm of empirical science, many researchers in the field of disability studies in education have embraced qualitative methodologies to offer interpretive resources with which people identified with disabilities can have greater participation in producing research and knowledge based on their lived experiences. Much of these efforts are born out of a recognition of the hermeneutical marginalization that we have discussed, and the need to create resources to promote epistemic agency, particularly for those labelled and regarded as intellectually disabled (Ashby, 2011; Taylor, 2018). Baglieri, et al. (2011) describe researchers in disability studies in education as “taking great care that we do not use research as a means of excluding the voices of people with disabilities ... [Rather] we aim to use research as a vehicle for their voices so that they can tell their own stories and share their own goals, aspirations, and needs” (p. 273). The reach of such efforts may be limited, however, if the voices of people with disabilities are dismissed as not credible, and the individuals are perceived to not have the capacity to interpret their own experiences. As we have shown, people who use facilitated communication face judgements of deficits in their credibility. These judgements may rise to the level of testimonial injustice when they are the result of prejudice that unduly undercuts the credibility of communication at an individual level.

In several instances, scholars have attempted to support the epistemic agency of people labelled as intellectually disabled and who type to communicate by co-constructing research with them. However, critics of FC have questioned, or in some cases dismissed, the testimony of people who use FC in published work. For example, articles by Biklen and Burke (2006) and Rubin, et al. (2001) are co-authored by Burke and by Rubin, two autistic people who learned to type to communicate independently using FC and who have at one point, prior to having access to communication, been either labelled or regarded as intellectually disabled. This research puts forth ideas for rethinking approaches to schooling for individuals identified with intellectual and developmental disabilities (Biklen & Burke, 2006), and questions prevailing notions of intelligence and competence (Rubin, et al., 2001). On the grounds that the co-authors who type to communicate have not had their authorship scientifically verified under message-passing conditions, critics have discredited their testimony and excluded these contributions to the study of schooling and the construction of intelligence. One of the ways that the credibility of typers' testimony is denied is through use of language that casts doubt on their contributions by nature of how they were produced. For example, Travers and Ayers (2015) express both skepticism and outright dismissal of the authenticity of Burke's and Rubin's published ideas, based on their identities as autistic authors who type to communicate. They first cast doubt on Burke's and Rubin's contributions by referring to Burke as “a person with autism who reads aloud messages attributed to him generated via FC,” and to Rubin, et al.'s article as including “statements generated via FC and attributed to Rubin” (p. 373–374). When discussing Biklen and Burke's (2006) article, Travers and Ayers (2015) write that Burke “allegedly offers his insight about the ideal school” in the article. In their most direct denial of Burke's contributions to research, the authors assert that given that FC is not considered scientifically valid, “we must conclude that words attributed to Burke are not reflective of his own true thoughts, opinions, or experiences; they instead represent the subconscious thoughts of his facilitator(s)” (p. 373). Importantly, Travers and Ayers (ibid.) offer no empirical

evidence for their conclusion that Burke and Rubin did not author their own thoughts, and further, disregard documentation of their independent typing. The fact that they have not proven their authorship by undergoing a controlled message-passing test is evidently sufficient for the authors to conclude that the testimony is not credible.

Outside of academic research, autistic people, including those who type to communicate, have documented their experiences in popular media, often in resistance to and in ways that reflect their marginalization from educational and social institutions. Published autobiographies, documentary films, and blogging continue to be mechanisms through which the autistic and neurodivergent community, disability justice community scholars, and disability rights activists push back against the marginalization of their knowledge in research and practice about their lives. However, in academic discourse, scholars opposed to FC have discredited testimony in media by people who type to communicate. For example, Lilienfeld, et al. (2015) question the authenticity of *The Reason I Jump: The Inner Voice of a Thirteen-Year-Old Boy with Autism* (2013), a best-selling book written by Naoki Higashida and translated by David Mitchell that describes the first-person experiences, preferences, and opinions of an autistic adolescent who types to communicate. Higashida reported initially receiving physical support by his mother in his writing, later learning to type independently. Lilienfeld, et al. (2015) assert that it is “difficult to evaluate” claims that Higashida types independently “without videotaped footage, which is unavailable as of this writing” (p. 83). “Moreover,” the authors write, “there is at present no scientific documentation of Higashida’s achievements” (p. 72). Lilienfeld, et al. (ibid.) do not clarify what comprises independence, what they refer to as “achievements,” nor what constitutes sufficient “scientific documentation” that would grant Higashida testimonial credibility.

While critics of FC most often link their critiques to the language of scientific evidence, Lilienfeld, et al. (ibid.) also draw upon their personal observations to question the authenticity of the voices of individuals who type to communicate. At one point, the authors discuss the documentary film *Wretches and Jabberers* (Wurzburg, 2010), which chronicles the journey of two autistic men in their efforts to change attitudes about autism and competence. The film stars Larry Bissonnette and Tracy Thresher, two individuals who type to communicate with support from facilitators. The authors proceed to question the authenticity of Bissonnette’s and Thresher’s communication through their responses to the film, by recounting personal observations:

The third author of this article (J.T.T.) has seen Thresher on two occasions in 2005 and 2008, and interacted directly with Bissonnette, including having lunch with him without his facilitator, never once witnessing him either type or communicate independently in a cognitively sophisticated manner. In contrast, Thresher can speak and can read what is produced for him by his facilitator’s intervention, raising questions concerning why he requires FC to communicate. (p. 82)

This passage serves to cast doubt on Bissonnette’s and Thresher’s ability to communicate authentically, and bleeds into commentary about Bissonnette’s perceived intelligence, both of which serve to deny their testimonial credibility. The third author’s observations during lunch with Bissonnette, for which the context is not described, are submitted as evidence that Bissonnette is not “cognitively sophisticated” (no criteria for this evaluation are provided). The two occasions in which the author “has seen Thresher” (the setting is not mentioned) speak and read aloud his typed text are then used to question why Thresher otherwise requires support to communicate. Bissonnette is thus portrayed as not capable of the complex thoughts he communicates in *Wretches and Jabberers*, and Thresher is characterized as either too capable to really need to use FC, or not capable of his own thoughts if what he read and spoke is assumed to be the thoughts of his facilitator. The authors’ inclusion of anecdotal evidence to question the authenticity of Bissonnette’s and Thresher’s thoughts is striking when considered alongside the authors’ earlier dismissal of qualitative data and first-person perspectives as being too “anecdotal” to be considered evidence of credible communication through typing (p. 70).

The influence of prejudicial assumptions on credibility and competence are apparent when the third author in the article by Lilienfeld, et al. (2015) evaluates Bissonnette’s and Thresher’s capacities to communicate during a meal (Bissonnette) and at an undisclosed distance (Thresher). The third author’s

description of Bissonnette as not appearing “sophisticated” appeals to common sense ideas about intelligence and implies that Bissonnette does not have the capacity to produce knowledge. Further, the evidence submitted raises the question: if the third author *had* seen evidence of “cognitively sophisticated” communication at lunch, would this “anecdotal” evidence then call into question the premise of the authors’ arguments that FC is scientifically invalid? Such casual judgements demonstrate how claims about disability using the language of scientific objectivity become interconnected with prejudiced assumptions and appeals to common sense. As Samuels (2014) argues, (dis)ability is often constructed through a diagnostic gaze that invokes both elements of scientific discourse and shared cultural understandings of what constitutes (dis)ability and (in)competence. Lilienfeld, et al. (2015) rely on cultural constructions of independence and competence to privilege their own experiences and judgements as legitimate while having previously dismissed similar forms of evidence from people who use FC.

Together, the examples above illustrate a pattern in how the testimony of those who use FC is discredited on an individual basis. This denial of credibility amounts to testimonial injustice in that the judgements of critics depend upon identity prejudice – in this case, presumptions about the capabilities of nonspeaking autistic people whose communication challenges conceptions of competence. While critics cite the authors’ methods of communication as a justification for dismissing their testimony, their arguments are implicitly rooted in disabled-mindedness, hinging on deficit-based constructions of autistic people who do not use speech as their primary mode of communication. Namely, the fact that authors have been labelled or regarded as intellectually disabled and also type to communicate, creates the default assumption that they are incompetent and not credible until they prove their credibility under conditions that satisfy researchers. Such critiques of the contributions of individuals who use FC employ a standard for accepting their epistemic agency that goes beyond what people who speak to communicate are held to.

Further, the dismissal of testimony at the individual level is supported by elements of hermeneutical injustice, which we previously discussed. Critics refer to the criteria for scientific validation through message passing as a prerequisite, and the only satisfactory evidence, that would allow them to deem the authors’ testimony to be credible. When the authors do not meet these conditions for evidence, researchers, one by one, discount their published testimony. Thus people who type to communicate are denied epistemic agency and excluded from contributing knowledge about their capabilities and about the marginalization that they experience. The researchers’ self-imposed criteria serve to “evacuate” knowledge (Williams, 2020) that could, and otherwise does, contribute to the collective understanding about autism, intellectual disability, and communication. This is particularly consequential when the knowledge that is dismissed could, and does, call into question accepted theories of autism and intellectual disability, and challenges ableist constructions of communication, intelligence, and competence. Rather than being understood as informants, the background conditions (i.e., self-imposed criteria for credible testimony) hinder the attempts of individuals who use FC to make their experiences intelligible.

To this point, we have argued that the self-imposed conditions for evidence of authentic communication of people who type to communicate, and the use of such criteria as grounds to individually discredit their testimony of their lived experiences, constitutes epistemic injustice. Autistic people who use FC are repeatedly marginalized and deemed not credible in their attempts to contribute knowledge of their experiences. This pattern reflects residual prejudice towards nonspeaking autistic people who type to communicate, owing to their identities and modes of communication, which facilitates their epistemic exclusion. Disrupting forms of epistemic injustice require an adjustment on the part of hearers (receivers of communication), or what Fricker (2007) refers to as a corrective virtue based on an awareness of the prejudicial conditions faced by individuals in their attempts to communicate.

In the next section, we examine the notion of presuming competence, an idea that has emerged in response to prejudice faced by people labelled or regarded as intellectually disabled, including presumptions of their incompetence. We consider the potential for presumption of competence as a virtue for correcting against epistemic injustice in both research and everyday practice.

Presuming Competence and Epistemic (In)justice

Even though my friends and I possess intelligent ideas, the people in the educational system for the most part have historically not understood how to educate us. Teaching kids, parents, and teachers is one of my goals. I want to plot out the path toward training teachers to look at their students with a wide lens of possibility. The lens is the way to see the pupil's intelligence that is always there but sometimes has difficulty coming out through communication. It is imperative that educators think about presuming competence and look for ways to see the intelligence in all of us. The student should not have to prove they are capable of learning. The school needs to provide the educational experiences to teach the student literacy, communication, and skills to be a learner. (Thresher, 2019, p. 39)

Countering epistemic injustices requires virtues that correct for the influence of the prejudice that underlies and facilitates credibility judgements; this necessitates “virtuous hearers” who listen (i.e., receive communication) in particular ways (Fricker, 2007). In the case of testimonial injustices, the virtuous hearer engages in critical reflexivity that confronts the possibility that low credibility judgements grow out of prejudice, and adjusts to compensate “to reach the degree of credibility that would have been given were it not for the prejudice” (ibid., p. 92). In the case of correcting for hermeneutical injustice, the virtuous hearer must have a heightened awareness of how a gap in hermeneutical resources may contribute to reducing the intelligibility of a communicator’s attempts to convey knowledge, and therefore either adjust or suspend credibility judgements (ibid.). Thus, building on one another, both testimonial justice and hermeneutical justice require active, corrective virtues on the part of the receiver of communication that seek to neutralize the impact of identity prejudice in exchanges with communicators. In this section, we describe the presumption of competence as a virtue of both kinds – hermeneutical and testimonial – with which to correct for epistemic injustices experienced by nonspeaking autistic people who type to communicate. Growing out of educational practice, the presumption of competence has corrective possibilities both within exchanges between interlocutors and within the constructions of disability in academic research that impacts the hermeneutical resources on communicative access and experiences.

The presumption of competence is a principle of approaching people, particularly students with disabilities, in which educators:

Assume that a child has intellectual ability, provide opportunities to be exposed to learning, assume the child wants to learn and assert him or herself in the world. To not presume competence is to assume that some individuals cannot learn, develop, or participate in the world. Presuming competence is nothing less than a Hippocratic oath for educators. It is a framework that says, approach each child as wanting to be fully included, wanting acceptance and appreciation, wanting to learn, wanting to be heard, wanting to contribute. By presuming competence, educators place the burden on themselves to come up with ever more creative, innovative ways for individuals to learn. (Biklen, 2012)

The concept of presuming competence has evolved out of a history of research and practice rooted in a commitment to studying disability as a complex sociocultural phenomenon, rather than as the individual deficit that it is represented as in discourse (Biklen & Burke, 2006). Bogdan and Taylor (1976) discussed “a concept of intelligence [grounded in] human dimensions,” and later the “social construction of humanness” (1989) in relationships between people with and without disabilities. Goode (1994) used the “emic” perspective in similar ways to which Linneman (2001) later characterized attributions of “mindedness” as contextual and relational.

To resist the educational consequences of presumed incompetence, Donnellan (1984) developed the “criterion of the least dangerous assumption ... [which] holds that in the absence of conclusive data, educational decisions ought to be based on assumptions which, if incorrect, will have the least dangerous effect on the student” (p. 142). Scholars and practitioners alike have taken up Donnellan’s criterion as a socially just lens for approaching the education and support of students with disabilities

with complex communication needs, positioning the act of presuming competence as the least dangerous assumption in educational contexts (Jorgensen, 2005; Jorgensen, McSheehan, & Sonnenmeier, 2007). The presumption of competence has been primarily located in educational research and practice in response to the experiences of people with intellectual and developmental disability labels, including autism, who, when securing access to communication training and associated supports, demonstrate capabilities previously unexpected of them (Rubin, et al., 2001).

We consider presuming competence to be a response to epistemic injustice that occurs when a prejudice on the part of a receiver of communication clouds their ability to receive a communicator's words (Fricker, 2007). The notion of presuming competence is espoused with the intention of countering how people with disabilities have been regarded, educated, and (mis)understood, as a result of beliefs that link the ability to speak and move reliably with the ability to think (Biklen & Kliever, 2006; Broderick & Kasa-Hendrickson, 2006). Countering such ableist ideas involves transcending constructions of intelligence predicated on expectations for reliable verbal speech and motor planning (Ashby, 2010; Broderick & Kasa-Hendrickson, 2006; Donnellan, Hill & Leary, 2013), and broadening notions of competence and conceptions of modalities through which competence can be demonstrated (Ashby, 2011). With its intention to counter prejudicial beliefs and practices, we can conceive of presuming competence as a sort of corrective virtue in the face of epistemic injustice. Scholars' description of presuming competence demonstrates a critical, reflective openness on the part of the receiver of communication to the possibility of credibility on the part of the communicator (in this case, a nonspeaking autistic person who types to communicate). Further, correcting for prejudice requires an awareness on the part of the hearer about the social theories, or generalizations that they have come to internalize about a social group, and which may influence their judgements of credibility. For example, Kliever, Biklen, & Petersen (2015) describe presuming competence as requiring a "suspension of a deficit ideology" that is commonly held towards autistic people labelled or regarded as intellectually disabled. Biklen and Burke (2006) write that to presume competence is "not to project an ableist interpretation on something another person does but rather to presume there must be a rationale or sympathetic explanation for what someone does and then to try to discover it, always from the other person's own perspective" (p. 168). Presuming competence thus counters the disabled-mindedness and ableism that underlies credibility judgements about nonspeaking autistic people who type to communicate, and encourages hearers to offset the impact of prejudice within such judgements.

There is also evidence that such a virtue can and has aided in increasing opportunities for epistemic agency and constructing more "inclusive hermeneutical micro-climates" – contexts in which the marginalization of the communicator is acknowledged by the hearer, and identity prejudice is corrected for (Fricker, 2007, p. 171). Collaborative research with people who type to communicate is an example of efforts to construct such a context (e.g., Biklen & Burke, 2006; Rubin, et al., 2001). Research that has moved beyond presumptions of incompetence in people who do not use reliable speech to communicate has generated new understanding about the neurological, motor, and sensory differences that contribute to barriers to communication, particularly for nonspeaking autistic people (Donnellan, Hill, & Leary, 2013; Torres, et al., 2013). In other words, the often unacknowledged challenges of organizing and regulating one's body in response to sensory and movement demands (i.e., those required for speech or independent pointing) are becoming more widely understood as the underlying experiences of actions and behaviours associated with autism that are too often (mis)interpreted (Donnellan, Hill, & Leary, 2013) – or, as Biklen (2005) writes: "the problem is not one of understanding, but of doing" (p. 267). Upholding an ethic of presuming competence has allowed research to begin to methodologically account for the experiences that autistic people have reported for decades. This process serves as a model for actively seeking out, centering, and honouring the epistemic agency of nonspeaking autistic people by aligning their reported experiences with study aimed at understanding and supporting – not fixing. This work serves as an exemplar of the conditions necessary for research to counter epistemic injustice. For people who use FC specifically, the growing understanding of sensory and motor differences, augmented by documented first-person perspectives and neuroscience, has implications for better understanding the need for dynamic, individualized approaches to support, how to most effectively fade that support over time, and what other strategies

(i.e., to support sensory, movement, organization, and emotional regulation) could further augment communication. This knowledge offers an example of new meanings that emerge that fill a hermeneutical gap when research methods centre and align with experiences of people who have access to alternative forms of communication to reduce the effects of hermeneutical marginalization. This work makes clear that a presumption of competence also involves understanding the role of sensory, motor, and neurological differences, or other experiences that cannot be observed, and honouring autistic ways of being in correcting for epistemic injustice.

Virtuous or Irresponsible: Critiques of the Presumption of Competence

Critics of FC have critiqued the notion of presuming competence, asserting that it is anything but virtuous. In their discussion of presuming competence, Travers and Ayers (2015) argue that encouraging practitioners (e.g., teachers) to presume competence itself leads to prejudice, and that the position should be dismissed in favour of professional objectivity. They assert: “Effective teachers do not rely on prejudiced decision-making processes and instead rely on objective measures of student performance to determine whether students have learned” (ibid., p. 378). The authors later conclude that: “The responsible position is to suspend judgment about the person’s competence and insist on sound (i.e., reliable, valid, verifiable) and objective evidence” (p. 384). Travers and Ayers’s recommendation to form judgements based on objective evidence could be understood as its own corrective epistemic virtue, intended to correct for the potential for what Fricker (2007) refers to as credibility excess. In other words, Travers and Ayers (2015) take the position that the presumption of competence could lead professionals to perceive capacities in people labelled or regarded as intellectually disabled that are not really there, thus lending an unduly high credibility to their communication.

To consider if Travers and Ayers’s (2015) position could correct for potential epistemic injustice, we should ask whether presuming nothing about an individual’s capabilities and making a judgement based on an objective interpretation of data is possible, or desirable. First, returning to Fricker (2007), a key force behind testimonial injustice is that receivers of communication are influenced by generalizations about groups within the collective imagination of their social context. This leads to “residual prejudices” that influence initial judgements of people’s credibility (p. 89). Indeed, researchers within the field of disability studies have frequently cast doubt on the possibility that, within the cultural, historical, and political context that imbues disability with meaning, nondisabled people could have a non-prejudicial view of people identified with disabilities. As Clare (2017) argues, the term “mental retardation,” the former label used to refer to intellectual disability, reflects assumptions about people’s capacities and comes with expectations and stereotypes. “The diagnosis of mental retardation,” Clare asserts, “is often dangerous, sometimes useful, but never neutral, never merely descriptive” (p. 42). Similarly, Yergeau (2018) examines the various ways that the lives of autistic people have already been “authored,” within the discourses of scientific research and wider culture, including by portraying autistic people as lacking certain human capacities (p. 141).

Clare (2017) and Yergeau (2018) point to how the very foundation and history of disability labels are entangled with assumptions of deficits in competence that foster prejudice regarding the identity (i.e., labels) of autism and intellectual disability. Importantly, as these authors argue, the construction of intellectual disability and autism as deficits is often based on putatively “objective” data (i.e., intelligence testing that requires reliable speech and motor control). Such data are written into educational documents that become institutional biographies of children, serving as the sources of the objective data that Travers and Ayers (2015) endorse as the foundation for forming judgements about a child’s competence. In doing so, the authors appear unaware of the pervasiveness of ableism, through both prejudice and deficit-based scientific constructions of disability, in “authoring” (Yergeau, 2018, p. 141) a professional judgement about people labelled as intellectually disabled. Returning to Taylor’s (2021) notion of disabled-mindedness, people labelled as intellectually disabled are already subject to being treated as having a deficiency in their capacity as knowers in educational contexts, owing to the presumption that their deficit-based labels reflect objective facts, as opposed to interpretations based

on limited understandings and prejudice towards atypical communication. That the authors imagine a world in which able-bodied and able-minded professionals can, and do, routinely engage with people identified as disabled without prejudice is ironic in the context of critiquing the presumption of competence; were such an ableist-free culture to exist, there would be no need for a virtue of presuming competence to begin with, and thus no critique of the concept by the authors would have been made.

Travers and Ayers (2015) also dismiss the usefulness of the presumption of competence on the basis that there is no evidence of its efficacy. In arguing that presuming competence should not be promoted, the authors point out that “no empirical research on PC [presuming competence] has been conducted to substantiate the claim it preserves dignity” (p. 371). Further, they submit that “no published experimental study of PC is available in professional literature. Thus, there exists no evidence to support PC as a practical idea” (p. 374). The authors’ demand for empirical proof of what happens when people (i.e., teachers) presume competence is consistent with the expectation of scientific testing for endorsing practices as evidence based. In other words, the authors treat an ethical position and philosophy for guiding action as a practice, or intervention, that must be evaluated to determine causal effect. Returning to our earlier discussion, such a position imposes a demand for certain types of evidence as determined by researchers. The demand for empirical validation to endorse an ethical position raises concerns over the role of researchers in limiting the diversity of efforts to resist social exclusion and discrimination. Such a standard runs the risk of privileging scientific rationality over responding to the historical and political contexts in which people’s lives are situated (Danforth, 2006).

Discussion

I worry about the future of autistic people who type. I wonder if there will be any advancement with research. I hope that there will be more inclusion and acceptance that autism does not automatically mean – can’t, won’t, or doesn’t. There is a saying in the disabilities community, “Nothing about us, without us.” A complete rethinking about autism and autistic neurology is needed if special education schools or any schools are going to educate those of us who think differently. Believing in the potential of all students is not on any test. The presumption that each and every student, whether they can speak or not, can and will eventually learn given the necessary supports and encouragement is not common, but it should be. (Zurcher-Long, 2019, 142)

The treatment of facilitated communication in research literature raises an epistemological quandary: a practice that is not validated by what researchers deem as necessary scientific testing is nevertheless essential in contributing to the epistemic agency of people who, because of their ways of being, thinking, moving, and communicating, have been historically and hermeneutically marginalized from participating in knowledge production. Our analysis calls into question whether the self-imposed limitations for producing knowledge that some researchers call for render educational research incapable of both facilitating access to communication for people labelled or regarded as intellectually disabled and providing consumers with knowledge that demonstrates the competence of such individuals. Specifically, the use of self-imposed limitations to justify the dismissing of testimony impedes efforts to convey knowledge that counters contemporary assumptions about the autistic experience and the treatment of disabled people as epistemic outsiders. These conditions serve to eclipse the voices of individuals who type to communicate in ways that constitute an epistemic injustice by denying their contributions to knowledge and setting a goal post, determined by professionals who simultaneously discount other evidence that informs the use of FC, that disabled people must meet before being deemed credible. Additionally, these conditions serve to limit the choice of communication options available to people for whom they may be most appropriate. Nonspeaking people cannot afford to continually wait for increased opportunities to “prove their membership” as

literate and competent citizens amidst restrictive notions of what counts as acceptable evidence of their communicated knowledge and experiences (Kliewer, Biklen, & Kasa-Hendrickson, 2006, p. 187).

If research about nonspeaking autistic people labelled or regarded as intellectually disabled is not up to the task of facilitating epistemic agency, it is necessary to consider alternative conditions for knowledge production that can dismantle, rather than perpetuate, forms of epistemic injustice. Virtuous behaviour at the level of individual encounters (i.e., by presuming competence) may aid in supporting a critical openness towards alternative forms of communication, and reduce instances of credibility deficits. However, the impact may be limited without addressing the ways that nonspeaking autistic people are marginalized to begin with, through a gap in hermeneutical resources needed to allow them to inform the world of their own experiences and ways of communicating. To provide the epistemic conditions in which such people can be recognized as “knowledge citizens” (Taylor, 2018), researchers must not outright discredit their testimony, even when it challenges current conceptions of what counts as evidence. This will involve applying the same skepticism towards self-imposed limitations on producing knowledge that is invoked by critics when discussing FC. Such skepticism towards a singular commitment to empirical science would recognize that multiple methods are needed to understand a phenomenon, and that the conclusions of researchers, even a consensus, are always temporal.

Moreover, we argue that researchers should reorient their efforts to seeking ways to promote epistemic agency, particularly given the evident risk of epistemic injustice in failing to do so. This requires an active acknowledgement that methodological decisions, by definition, have consequences on knowledge production (Dindar, Lindblom, & Kärnä, 2017). Thus, such decisions must be made in collaboration with members of the community in which the research is situated. To do so requires conditions that create parallels between designing collaborative inquiry across communicative and neurocognitive diversity, and building communication support partnerships (such as those developed in FC). In both contexts, trust and agency are paramount epistemic conditions that are antithetical to the current search for evidence that relies upon deficit constructions of disability. Rather, methodologies and methods that “center and reclaim disability” (Lester & Nusbaum, 2017) can align to enhance participation in knowledge production. Such collaborative efforts involve the virtuous approach of constructing hermeneutically inclusive micro-climates (Fricker, 2007) through which new knowledge can be created and disseminated to fill the hermeneutical gap that exists around experiences and possibilities of nonspeaking autistic people who do, or could, type to communicate. This work not only challenges who engages in research and how, but also what forms research processes take, ideally mirroring the range of communicative diversity around which they centre.

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