

How Creative Practice can be used to Co-create Effective Learning Environments with Neurodivergent Students

Abstract

Neurodivergent people make up between 15-20% of the population in the UK (Doyle, 2020). Despite being a significant minority, schools in Britain consistently fail to meet the needs of neurodivergent students, who are unfairly disadvantaged by a neurotypical education system. This study uses critical participatory action research (CPAR) to explore the role of creative practice in producing learning environments that are more accessible to all students. Engaging with CPAR through creative practice, 9 year 11 neurodivergent student co-researchers played an active role in shaping their own learning environments, where the open and exploratory nature of the process gave them the freedom to direct their own learning according to their individual interests and needs. These 'crippled' educational spaces allowed non-normative subjectivities to be valued and foregrounded as providing unique insight into different ways of understanding the world. Creative practice supplied multiple entry points and modes of participation to support a variety of pedagogical relationships, and promoted autonomous learning through horizontal power structures. Over four cycles of CPAR, the student co-researchers engaged with creative processes to develop confidence and motivation, eventually taking the lead to co-produce more effective educational environments for themselves and their peers.

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1. Introduction

The paediatrician laughs with me as we watch my little boy pick up his shoes and walk over to the door to indicate that he's ready to leave. We spent half an hour chatting and playing with him so that she can understand more about his little Gruffalo world-without-words. Then, she turns to me and her smile suddenly disappears. She puts on an overly-serious tone and declares, 'Now that I've had the opportunity to assess D, I can confirm that his behavioural presentation is consistent with a diagnosis of autism'. I start to cry. Not because anything has changed in the last few moments (I already know he's autistic), but because I suddenly feel the weight of the world staring down at me, pointing and saying 'AUTISTIC' like it's the end of something. I turn to look at my little boy, patiently tugging on the door handle. He's still smiling innocently, but we're both definitely ready to leave.

Neurodivergent people are thought to make up between 15-20% of the population in the UK (Doyle, 2020), with some estimates putting the figure closer to 27% (FE News, 2022). This means neurominorities constitute a significant minority. Despite this, many neurodivergent people are disadvantaged and can feel excluded within a predominantly neurotypical society. As a consequence of various forms of social exclusion that begin in childhood, primarily within the education system, neurodivergent adults experience disproportionate rates of unemployment, and where they are employed, are often unable to meet their full career potential (Doyle, 2020). One in three young people within the youth justice system are currently thought to be neurodivergent and there are high rates of adverse childhood experiences and trauma also associated with this population (Kirby, 2021).

Disabled young people in general are more likely to depend on social interventions and find the transition to adulthood more challenging due to a lack of social inclusion, where difficulties experienced during this transition mark the beginning of lifelong inequalities for young people who identify as disabled (Bertilsson Rosqvist, O'Dell and Brownlow, 2014,

pp.6-7). The start of formal education is often a young person's first significant introduction to wider society, and this can also mark the beginning of many smaller exclusions for neurodivergent students, such as reduced timetables, behavioural monitoring, sanctions and physical separation from peers, all of which can have a significant negative impact over time (Wood, 2019). For this reason, creating educational environments more conducive to neurodivergent ways of being could have a significant positive impact on reducing inequality and social exclusion for neurodivergent people in later life.

1.1 Research Questions

The following research questions will be addressed:

1. How can educators and neurodivergent students co-create accessible learning environments through creative practice?
2. How can creative practice be used to co-produce educational environments that meet the widest range of individual needs, enabling all students to be engaged and motivated to learn?
3. How can creative practitioners facilitate pedagogical conditions supportive of neurodiversity, in addition to promoting personal and social development, improved communication and collaboration between students?

This research project addressed these questions by researching a 12-week creative program, designed with a group of 9 neurodivergent students (14-15 years old) studying at the Alder Centre for Education (ACE) in Liverpool, to develop knowledge and skills, creating pathways for a possible career in the creative arts.

This research project works within the neurodiversity paradigm, which views neurological differences as a natural consequence of human diversity (Walker, 2020). As such, it argues that difference and diversity in cognitive functioning should be anticipated in all educational settings, and it is incumbent upon institutions to provide an accessible curriculum within an environment conducive to learning for all. Rather than attempting to create 'special' educational environments, this research outlines a maximally inclusive approach to

education that works for as many young people as possible, by anticipating neurodivergence as a starting point for the design of the learning environment. Creative practice offers a means to achieving this by providing an open and exploratory approach to education, through a process of developing novel solutions to practical problems (Amabile, 1996), and where thinking differently is not perceived as a barrier to learning.

This introductory chapter outlines the context for this study and the significance of both the neurodiversity paradigm and critical disability studies. It argues that educational environments should be significantly improved to ameliorate the unfair disadvantage and exclusion experienced by neurodivergent students compared to their neurotypical peers.

1.2 The Neurodiversity Paradigm

L and I sit in the car talking about our kids' diagnoses. L turns to me and says, 'I think I might be autistic you know?' I say 'Oh, right', but inside I'm trying to do some mental gymnastics... I've known her since we were 12. I think I would have noticed something that significant. The doctors have told her that she's just an anxious person, and I'm inclined to believe them, but I go along with her, listening patiently, but secretly adding my own interpretation to everything she is saying to me...

Two months later, I've done my reading and I finally get it. I call her and say 'you're so autistic... I'm sorry I didn't understand'. We have a conversation where 25 years of friendship starts to make sense – every disagreement we've ever had can be explained by the two separate universes we never knew we lived in. We love each other, but this moment is bittersweet. This is the closest we've ever been, but I also know there's a distance here; I can never really know what it's like to be her, nor her me. We just have to accept those differences, but it turns out acceptance is all she ever really wanted from me anyway.

A paradigm is a foundational set of beliefs and assumptions that influence how we think about a subject (Walker, 2021). The medical model, based upon a pathology paradigm, is the dominant model of disability within our society today. It locates disability within the individual, and views neurodivergence as pathological in nature (Bertilsdotter-Rosqvist, Stenning and Chown, 2020). Diagnoses generally rely upon behavioural indicators, and 'treatment' is aimed at remediating behaviour such that social inclusion is dependent upon an individual's ability 'to approximate values of normalcy' (Shannon, 2020, p.492)

The Neurodiversity Paradigm, however, challenges these assumptions by stating:

- 1) Neurodiversity is a natural and valuable form of human diversity.
- 2) The idea that there is one "normal" or "healthy" type of brain or mind, or one "right" style of neurocognitive functioning, is a social construct.
- 3) The social dynamics surrounding neurodiversity are similar to those for ethnicity, gender, or culture (Walker, 2020).

This paradigm challenges social discourse grounded in binary opposition, that reifies dominant social groups as 'better', 'right' or 'good', whilst rejecting minority groups as 'wrong' or 'disordered'. Instead, the neurodiversity paradigm recognises diversity in human cognitive functioning as healthy and expected. Binary thinking is consequently viewed as both harmful and reductive, arising from power dynamics between majority and minority social groups, rather than offering a realistic description of human diversity. Social value judgements around neurodiversity find their origins within the fields of psychology and psychiatry. These disciplines set the standard for 'healthy' cognitive functioning, and determine acceptable levels of deviation from the norm. Being able to define and diagnose neurological 'disorders' has enabled the fields of psychology and psychiatry to attain positivist credentials (Olssen, 1993). However, as multiple iterations of the Diagnostic and Statistical Manual of Mental Disorders (DSM) have demonstrated, judgements concerning psychological 'wellness' and healthy cognitive functioning have shifted dramatically over time in conjunction with changing social and cultural values (Olssen, 1993; Moncrieff and Timimi, 2012). This means that these judgements are not immutable and can be challenged.

The Neurodiversity Paradigm presents such a challenge, aligning itself with the social model of disability, which stems from the Disabled People's Movement. The Disabled People's Movement was a global social and political movement, led by disabled people, campaigning for equal rights, accessibility and independent living, which strongly aligned with the social model of disability (Shakespeare, 2013). The social model of disability claims that people are disabled by social and physical barriers that exclude them from full participation in society (Oliver, 2013) rather than by individual differences or impairments (UPIAS, 1976). This provides a critique of the medical model of disability by demonstrating, in relation to neurodiversity, it is not individuals who need to align more effectively with social expectations, but that physical, social and attitudinal barriers must be removed to enable equal participation in society.

Walker (2021) suggests that a shift is required to ensure that the principles of the Neurodiversity Paradigm have a significant influence within neurodiversity discourse. Broderick and Ne'eman (2008) explain that when neurotypical researchers research neurodivergence *from the position of neurotypicality*, this can easily lend itself to pathologizing and 'othering' neurodivergent individuals. However, many neurodivergent researchers choose to adopt a neurodiversity paradigm perspective in their work, as their lived experience is that of difference rather than disorder. Some neurodivergent researchers, such as Grant and Kara (2021) suggest that there are a number of advantages to being a neurodivergent qualitative researcher, such as creative problem-solving skills, attention to detail and maintaining focus on tasks, and that 'the next step is for neurotypical and neurodivergent researchers to work together inclusively' (Grant and Kara, 2021, p.592).

In order to initiate a paradigm shift, it is necessary to change the way neurodivergence is discussed, avoiding inherently pathological language. Terms such as 'neurotypical' allow us to describe the most common neurological type, without placing this group in a privileged position. 'Neurodivergence' refers to any neurocognitive functioning that differs significantly from neurotypicality, and 'neurominority' describes any group of individuals that share similar neurocognitive characteristics (such as 'autistic', 'dyslexic' or 'ADHD'). Use of the term 'neurominority' acknowledges the lived experience of these minority groups and their struggle for a fairer society. Walker also draws attention to the importance of identity-

first language when discussing neurodivergent individuals, rather than person-first language, as used within the medical profession (Walker, 2021, p.21). For example, referring to 'an autistic person' rather than a 'person with autism', affirms autistic identity rather than implying autism is a condition that someone lives with. For this reason, identity-first language will be used throughout this thesis.

Finally, the neurodiversity paradigm rejects all normative concepts of cognitive functioning. Instead, neurotypicality becomes a term used to describe *behaviour* that accords with the prevailing cultural expectations of what is considered 'normal'. For example, if the majority of people are able to engage in small talk with a group of strangers, or can navigate a loud and busy environment with relative ease, this would constitute a description of neurotypical behaviour, but there is no value judgement placed on this compared to other types of response. A neurodivergent person's response to the same situations would most likely differ significantly from this 'culturally mandated performance of neuro-normativity' (Walker, 2021, p.59), but this is seen as simply different, rather than pathological, under the neurodiversity paradigm. Using these terms as simple descriptors of majority and minority behavioural responses neutralises the disempowering and oppressive value judgements that regard neurodivergent ways of being in the world as inherently wrong.

The consequence of adopting the neurodiversity paradigm, therefore, necessitates a conceptual shift from trying to change or 'cure' individuals to align better with neurotypical expectations of 'normalcy', to considering how environments might be designed to become more accessible to everyone (Bertilsson Rosqvist, Stenning and Chown, 2020). Adopting a neurodiversity approach does not preclude a person receiving medical treatment or interventions that would benefit them, but it does reject attempts to 'normalise' individuals by bringing their behaviour in line with neurotypical expectations (ibid., p.7).

For this reason, this thesis (working within the neurodiversity paradigm) rejects the notion of neurodivergent students as inherently disordered, and proposes the development of educational environments that value difference and are accessible to as broad a spectrum of different neurotypes as possible. This is bolstered by an additional belief that when students fail to learn, this is not individual failure, but a failure of the system of support

surrounding that young person. Although education cannot be expected to cure all of society's ills, much more can be done to enable neurodivergent young people to get the most out of their formative educational experiences. This would lead to improved outcomes for neurodivergent young people in their transition to adulthood, and could ameliorate some of the disadvantage experienced by neurodivergent people later in life.

1.3 Disablism, Ableism and Neoliberalism in Education

This young man is the smallest in the class. He stands there, looking at the floor, whilst various adults, including myself, take his hands and jolly him along, trying to get him to take part in the dance. When we each move on to another child, his hands fall back by his side and he just stands there, motionless. L comes to a session. She says 'why is everyone shaking him around all the time? Try to find the movement that's already in his body'.

I don't really understand what she means, but next session, I go over to him and kneel down. I offer out both of my hands, careful not to touch him. Tentatively, he takes them, and we begin a conversation through movement. Neither of us is leading or responding, but we are both listening to each other. We are moving together. By the end of the session, he is up on the stage playing air guitar and telling me to stop being so embarrassing. Every session after that, he is the most animated person in the room.

There is a complex relationship between the experience of disability in our society and prevailing neoliberal ideology, which prioritizes individual freedom and personal responsibility over state protection and support, and where free market economics are seen as the self-sustaining solution to all forms of government intervention (Harvey, 2005). Goodley (2014) discusses how, in neoliberal societies, disability is made increasingly visible through the proliferation of diagnoses and treatment, whilst simultaneously seen as something to be eradicated. The body is politicized, and the social model of disability

highlights this by presenting disability as a form of social oppression, rather than an issue of individual impairment (Oliver 2009). Social materialist theories of disability, which explore the interaction between social relations and material conditions, describe how neoliberal capitalism valorises the independent, self-improving, capable and rational individual, whilst rejecting the inter/dependent, reliant, physically and/or mentally impaired individual that is economically less productive (Oliver, 2009). In education, this manifests itself through a culture of performativity, where students are continually measured against their peers, and institutions are ranked according to their performance in league tables (Ball, 2003). This system renders students who are unable to 'perform' effectively as doubly problematic; they present a risk to the school's reputation and may also require additional accommodations that place a financial burden upon the school.

In creating these dis/ability dualisms, neoliberal capitalism requires individuals to adopt disabled identities to gain access to systems of support or services, and identifying as neurodivergent can create contradictions (Goodley, 2014). Neurodivergence is not specifically recognised as a protected characteristic under the law (The Equality Act, 2020), so neurodivergent people must adopt a disabled identity to access benefits and reasonable adjustments, irrespective of whether they consider themselves to be disabled. Children and young people with the most significant 'special educational needs' must obtain an Education Health and Care Plan (EHCP) to ensure that their needs are satisfactorily met by their school.

However, EHCPs are not easily obtained, requiring assessment and agreement from multiple agencies including schools, local authorities and medical professionals, in addition to a lengthy administrative process. Even when children obtain an EHCP, access to specific institutions is not guaranteed due to high demand, and the school's assessment of whether they can meet a particular child's need (IPSEA, 2014; GOV, 2022). Being fully included within mainstream settings often means children are required to 'fit in', by approximating a version of neurotypicality to avoid being labelled as problematic. Therefore, the system requires students to both disable themselves to receive support, whilst simultaneously demonstrating they can meet minimum standards of neurotypicality to be fully included.

There are two potential responses here to improve equity and inclusion within the current education system. The first is to move beyond a culture of performativity as an inefficient way to respond to social need (Olssen, Codd and O'Neill, 2012), which entrenches social inequality (Slee, 2011) and views education as a means to an end, requiring a 'shift attention from material standards and economic growth to ways of improving the psychological and social wellbeing of whole societies' (Wilkinson and Pickett, 2009, p.4). Secondly, a challenge could be made to normative standards of education that privilege neurotypicality, and disadvantage those who think differently - a one-size-fits-all approach to education will always favour the neurotypical, non-disabled majority, and will continue to disenfranchise those who stray from this idealised 'norm'.

There is, however, a more radical solution. Instead of starting with the assumption of a fully independent and autonomous citizen, which is especially problematic considering the still-developing needs and abilities of young people within the education system, Fineman (2008) suggests that we should instead model our public institutions upon the notion of a *vulnerable* subject. Fineman argues that vulnerability is universal and inherent to the human condition, while the notion of the autonomous and independent citizen can only be applied to small sections of society who have had access to resources and privileged circumstances. Even for those individuals, independence can quickly disappear with illness, changes in material circumstance and old age. If the state adopted a view of its citizens as inherently 'vulnerable', it would have a responsibility to protect everybody equally. This requires a societal shift from creating 'equal opportunities' and preventing discrimination against individuals to considering how institutions unfairly privilege and protect some whilst failing to protect others. In education, this means creating a system that meets the needs of all students, helping them gain knowledge and skills for life that will mitigate against their vulnerability, rather than striving for independence.

Because the current education system in Britain unevenly distributes support and safeguards to students based on distinctions, such as perceived ability (Slee, 2012), many neurodivergent students spend significant time and energy modifying their behaviour to meet neurotypical expectations in school. This can take the form of imitating expressions, responses and the conversational style of neurotypical peers so as not to stand out,

suppressing physical stims and other forms of self-regulatory behaviours, and remaining in physical and sensory discomfort for extended periods of time. Consequently, for some students, very little time and energy remains for learning (Nolan and McBride, 2015). When learning does take place, inclusive practices and 'reasonable adjustments' fail to challenge 'deeply ingrained and widespread individualist, essentialist and static conceptions of learning that ultimately disempower and...disable students' (Podlucká, 2020, p.70), often resulting in poor mental health outcomes. This can create additional barriers for neurodivergent students attempting to access education, with implications that will now be explored.

1.4 Mental Health and Illness

She is halfway up a ladder, petrified, tears streaming down her face. Her whole body is shaking, and she looks utterly alone and miserable. I say, 'just come down, it's ok'. She half-chokes, 'No! It's my problem, I just have to learn to get over it!' She stays there, fixed and clinging to the rungs of the ladder. She finally manages to raise a trembling finger up to touch the rig. This was meant to be a game... Ah! Relief. The lightest and quickest of touches and she slowly descends like a wounded animal, spending the rest of the session firmly on the ground.

Six months later, I stand watching as she ascends the yellow ladder, the wobbly one. She tries to reach the cable, but can't, so steps confidently on top of the a-frame. The apex. I watch, amazed, as she lifts one foot up off the platform to reach. Usually I'd tell her to come down and move the ladder closer, but I'm transfixed as she balances balletically on one foot high up in the air, flying motionless. Her finger snags the tape, and the cable comes loose. She descends with poise, oblivious to the miracle I've just witnessed. Her defiance is grace.

Inflexible and unaccommodating learning environments can be hostile to neurodivergent young people, contributing to a disproportionate number who experience poor mental health. 70% of autistic young people are diagnosed with a mental health condition, most commonly anxiety (Guldborg et al., 2019) and for neurominorities more generally, depression, Obsessive Compulsive Disorder, eating disorders and PTSD are also common (Cannistra and Lin, 2023). The greatest predictive factor for individuals experiencing poor mental health is previous experience of trauma (Farahar and Bishopp-Ford, 2020, p.54). In neurominority groups, this trauma often arises from social stigma, exclusion and isolation in various forms, lack of support and awareness of neurominority conditions, and having to mask or change behaviours to meet neuro-normative expectations (Cannistra and Lin, 2023). By changing physical and social environments, including expectations and attitudes towards neurodiversity, it should be possible to reduce the proportion of neurodivergent people experiencing mental health issues in our society.

Creating educational environments that minimize anxiety is especially important, as high levels of anxiety reduce a person's cognitive capacity, in particular, their ability to learn and take in new information (Beardon, 2020). As this is the main purpose of education, tackling anxiety in schools should be seen as a necessity for *all* students, and the response should be proportionate to the level of need. For autistic students, this might include adaptations to the sensory environment, improving structure and predictability, clarity of communication, and having flexible expectations or relaxing rules where possible to increase access for all (Wood, 2019).

Masking is one behavioural response that neurodivergent young people frequently employ in educational settings in order to 'fit in' (Hersh et al., 2020). Masking can take many forms, including suppressing stims or repetitive behaviours in public, forcing oneself to make eye contact, practising facial expressions and socially appropriate responses, imitating behaviours and avoiding mention of special interests (Wassell, 2023, p.61). Masking is used as a form of self-preservation in response to 'a society which stigmatizes difference so much that even a child subconsciously realizes they need to protect themselves', and it can be exhausting to sustain over long periods (Wassell, 2023, p.59).

Masking behaviour can also create a disconnect in personal identity, resulting in psychological distress, as it requires continuous effort to suppress natural forms of embodiment and expression in favour of unnatural ones (Hamilton and Petty, 2023). Over time, this can be extremely detrimental to positive mental health, resulting in anxiety and depression, exhaustion, self-harm and suicidal ideation (Miller, Rees and Pearson, 2021). In school, masking behaviours can lead to capabilities being underestimated or individual needs being overlooked completely, as young people attempt to blend in with the crowd by keeping quiet, or 'acting out' as a form of psychological self-defence. This pressure to conform is endemic, occurring at both an institutional level, as well as in everyday interactions with peers, and is an example of psycho-emotional disablement (Thomas, 1999), where persistent social pressures and lack of acceptance cause individual well-being, self-esteem and confidence to be undermined. As the diagnostic criteria for autism currently depends on behavioural indicators, and masking is an attempt to suppress or modify behaviours, this can lead to underdiagnosis of autistic young people who mask. Masking behaviours are particularly common in autistic women and girls (Miller, Rees and Pearson, 2021), meaning that this group are consistently underdiagnosed or misidentified as having an anxiety disorder, and without a diagnosis, young people may not be able to access the support they need (Elley et. al, 2020).

Exacerbating this situation, many educational codes of conduct have been established to reflect neurotypical norms and standards, which may be experienced as excessively punitive or detrimental to neurodivergent young people's mental health. Neurotypical teachers can cause further harm by trying to control or manage certain behaviours, where the cost of behavioural compliance for neurodivergent individuals is not fully understood. Beardon (2020) warns against enforced behavioural compliance. He explains how neurotypicals frequently misinterpret behaviours that challenge, such as meltdowns, shutdowns, physical stims and verbal or motor tics as intentionally disruptive, when they may serve a very important purpose for the young person. Rather than forcing compliance, Beardon suggests identifying and removing the *cause* of behaviours that challenge, in which case the behaviour will change on its own, without external intervention. In classrooms, this suggests calm and supportive environments where young people are free to self-regulate, and feel

able to ask for whatever they need to do so. If the causes of anxiety and distress are minimized, the resultant behaviours will be minimized as well.

For the purposes of this research, and in compliance with SEND Codes of Practice in schools, a balance must be reached between individual ways of being within a classroom, and regulation of student behaviour so that it does not negatively impact the well-being and engagement of other pupils. This might involve providing alternative forms of self-regulation for pupils, sensory breaks and choices around engagement. One distinction that must be drawn, however, is between neurotypical expectations of student behaviour and behaviours that actively disrupt other pupils. While the first should be actively challenged, it is only the second that is in need of regulation and support.

1.5 Neuroqueering Education

They say she doesn't do art. She's had a bad experience and now she just goes home whenever there's an art lesson. I'm not having that – she definitely does do art. She just doesn't do art lessons... But this isn't an art lesson.

I say 'we're making light boxes today'. I go around the class to get everyone started, then go over to her. 'Why don't we make one for your little brother's room?' It's a risk, but it pays off – she throws me a look, a tiny smile and an almost imperceptible nod. It's a yes! I spend quite a lot of the lesson sitting with her, poking the LEDs through the wood. I put the hot glue on, and she pokes them through, one by one. We're a team. In silence, we finish it. It looks fabulous, then we switch it on, and her little brother's name comes up in lights! The rest of the class have finished theirs before us and have drifted off into the corner to chat and giggle. That's ok. We did it. She does do art.

This study employs Critical Disability Theory as a theoretical framework for developing inclusive educational approaches for neurodivergent young people. Critical Disability Theory

is a theoretical framework that views disability as a social/political issue grounded in relationships of power. It differs from disability studies in general through deep engagement with critical social theories, such as crip theory and queer theory, challenging the structural and ideological foundations of oppression. Crip Theory is a post-structural theory that problematizes the naturalisation of able-bodiedness and able-mindedness in our society (McRuer, 2006). It shares many of the same tenets as queer theory, and draws similarities between the experiences of disabled and queer people, who have both been culturally marginalised and medicalised in similar ways over time. Both groups have been pathologized by the medical profession at different times, and have had to fight for autonomy and agency over their own bodies and decisions relating to their lives (Abrams, Floyd and Abes, 2024). McRuer highlights the relationship between what he terms 'compulsory able-bodiedness' and neoliberal capitalism, where able-bodiedness is directly linked to productivity, and defined as 'being capable of the normal physical exertions required in a particular system of labour' (McRuer, 2006, p.8). The 'compulsory' aspect of able-bodiedness (and by extension, able-mindedness), derives from an understanding that in order to access every aspect of society, to be constituted as a full citizen, able-bodiedness and able-mindedness are required. All other identities are measured in relation to these societal 'norms'.

Crip theory poses a direct challenge to these forms of compulsory able bodied/mindedness (McRuer, 2006), by assuming difference and diversity as inherent to the human condition. Under this assumption, D/deaf, disabled and neurodivergent people should not seek 'inclusion' in society, but demand that society rethink spaces, situations and practices to ensure that they are accessible to all. Abrams, Floyd and Abes (2024) suggest certain preconditions must be met to achieve this. Firstly, difference and disability must be understood as *fluid*, that is, bodies and minds change over time, so access needs will also change over time. Secondly, compulsory able-bodiedness and able-mindedness under neoliberalism are intimately linked with assumed independence as the preferred state. Crip theory emphasizes the value of interdependence, relationships and mutual support. Finally, compulsory able-bodiedness and able-mindedness function within a set timeframe – there is an expected pace to our daily lives based upon normative expectations of time, and how long certain activities 'should' take. Crip theory challenges this through the notion of 'crip

time', where rather than forcing bodies and minds to comply with fixed timeframes, time is forced to bend to meet the changing needs and abilities of individuals. The result of all these considerations is that creating accessible spaces requires a continued commitment to change, responding effectively to the unanticipated and the unpredictable (Abrams, Floyd and Abes, 2024).

'Neuroqueering' is an extension of the practice of 'cripping', but with specific reference to neurodiversity. It is defined as 'intentional non-compliance with the demands of normative performance' (Walker, 2021, p.175). In education, this means rejecting inclusionist practices, where students may be physically present but functionally excluded, and where attempts are made to 'rehabilitate' individuals to better fit neurotypical expectations (Shannon, 2020) in favour of subverting and directly challenging those practices. Mitchell, Snyder and Ware (2014, p.305) argue that the price of inclusion in education is to appear as non-disabled, to hide, mask and ameliorate difference to the extent that 'much of the value of crip/queer experience is lost'. This not only devalues the experience of the young people it seeks to include, but the experience of *all* young people, by seeking to reproduce every child as the 'average' child; a compliant, self-reliant and productive neoliberal individual. For Goodley (2014), this is an example of 'neoliberal-abelism', which creates and commodifies the 'ideal citizen', a fictional average unachievable in reality.

Curricula level reform is recommended by Mitchell, Snyder and Ware (2014), who suggest this can be countered through employing 'curricular cripistemologies' where difference and disability are recognised as valuable and inherently meaningful. Creative practice offers an opportunity to 'neuroqueer' educational spaces, by creating environments where difference is not only valued, but actually enriches the learning experience itself. The values underscoring creative practice align closely with those of crip theory, as creativity requires thinking differently, and novel approaches to problem solving. 'Crippling' an educational environment means foregrounding difference, whilst simultaneously drawing attention to and rejecting neuro-normative practices and processes that are both exclusionary and 'othering'. For this reason, it is anticipated that creative practice will provide an effective means of co-creating more accessible educational environments for neurodivergent students in this study.

In order to embrace difference and discover alternative practices, it is necessary to challenge neurotypical expectations about what counts as a valuable student contribution. Shannon (2020) gives the example of a young autistic girl whose vocalisations were not taken seriously by teachers during a creative music lesson, as they were thought to be involuntary and therefore of little musical value. On later inspection, however, the vocalizations were understood to be imbued with meaning and personal significance for the student, and a genuine contribution to the class. This exemplifies how neurotypical expectations of student ability can sometimes cause neurodivergent meaning to be dismissed or ignored.

Alternative understandings of meaningful participation are therefore also essential to ensure full access to education for neurodivergent young people. This could include different ways of occupying the space, watching and listening-as-participation, and valuing individual responses to tasks that might run counter to neurotypical expectations. Bakan (2014) draws attention to alternative understandings of participation that arise from different forms of embodiment. He highlights that some neurodivergent young people experience the world in a significantly different way to neurotypicals, meaning that their chosen forms of participation also differ markedly from the norm. During a participatory music project, one young student chose not to use an instrument for the first few weeks. Instead, actively listening and experiencing the music formed a necessary aspect of her participation. When she later chose to become involved as an active maker of music, that was not a progression from impairment to enablement, but

simply made manifest a fluid progression between different modes of productive engagement, the one more listening – and introspection-oriented, the other more performance-directed and explicitly active (Bakan, 2014, p.153).

This demonstrates how neurotypical meaning-making and understanding of participation can easily come to pathologize other forms of engagement. Crip theory provides a

framework that problematizes such neurotypical standards of creativity and participation, and reveals other ways of interacting with the world as inherently valuable.

These examples also demonstrate what Milton (2012) refers to as ‘the Double Empathy Problem’, where social differences in communication style between neurotypicals and autistic individuals lead to mistaken assumptions about the autistic person’s social ‘deficits’ that make them unable to communicate ‘properly’. Similarly, autistic people are frequently considered to have difficulties with ‘theory of mind’ (understanding or being able to infer what another person is thinking) and empathy (being able to understand what another person is feeling and why). As Milton explains, if we recognize that neurotypical people have similar difficulties understanding what autistic individuals think and feel, we realize that it is not an autistic deficit, but a mutual deficit resulting from two different cognitive styles. However, because neurodivergent people are in the minority, neurodivergent ways of thinking and feeling become labelled as inadequate, ‘wrong’ or simply incomprehensible to so-called ‘normal’ ways of understanding the world, and consequently, much of this epistemic and ontological richness is lost within mainstream education.

For the purposes of this research, any attempt to ‘neuroqueer’ or ‘crip’ educational spaces will require more than just openness and acceptance. It also requires active questioning and challenging normative assumptions that constitute the majority of our daily interactions, leading us to draw conclusions about other people’s intentions and experiential worlds. As the Double Empathy Problem (Milton, 2012) demonstrates, it is particularly difficult for neurotypical researchers to fully appreciate the needs of neurodivergent students. Only neurodivergent young people can express their own educational needs, requiring openness and acceptance to do so, as well as the opportunity to explore those needs, and for the findings to be taken seriously. For this reason, a participatory methodology will be adopted within this study that positions students as student co-researchers, and involves a neurodivergent adult as part of the research team to ensure that neurodivergent voices and concerns are foregrounded throughout the process. This will enable neurodivergent epistemologies and ontologies to actively inform the creation of accessible educational environments. This is explained in greater detail in the Methodology chapter.

1.6 Creativity for Crippling Educational Spaces

Difference is not always stigmatized and rejected under neoliberal capitalism, but is often celebrated, as long as it can be controlled and made to serve the interests and generation of further capital. Advertising campaigns are one example where counter-cultural, subversive or controversial ideas are used to attract attention, and make products and services feel new, exciting and 'cool'. As MucRuer explains:

through the appropriation and containment of the unrestricted flow of ideas, freedoms and energies unleashed by new social movements, neoliberalism favours and implements the unrestricted flow of corporate capital (McRuer, 2006, p.2).

This means that creative ideas with the potential to instigate change or critique the status quo often become culturally assimilated and lose their disruptive capacity, as creativity constitutes a generative force for the production of future capital. Creativity requires freedom of thought, behaviour and expression to flourish, and these conditions run counter to the normalizing forces that generate obedient and productive citizens. In order for creativity to exist harmoniously within neoliberal capitalism, therefore, and to be used as a means of increasing productivity and consumption, creative freedom and expression must be managed and contained to sanitize the risk it poses to neoliberal values.

Many of the proponents of the cripp movement are disabled artists and activists who have found creative ways to protest against the systematic oppression and subordination experienced under neoliberalism (McRuer, 2006). Most commonly, this social control occurs within public institutions, through systems of integration and inclusion, which make individual accommodations and reasonable adjustments, but leave the structural inequalities of late capitalism intact. Mainstream education is one such area, where standardization and competitive individualism has left little space for either creativity or difference to be valued. As Slee explains:

They emphasize the need for autonomous learners and disqualify the role of mistakes (or failure) in learning... they urge creativity and reify uniformity and standardization (Slee, 2010).

This thesis will argue that the values of both crip theory and creativity functionally align in terms of their disruptive power towards the normalizing forces of neoliberal society, particularly in education. Both crip theory and creative practice challenge the supremacy of what is already known or pre-established. They both embrace diversity as inherently valuable, and support the emergence of different ways of thinking and behaving that create new possibilities for action.

Both crip theory and creative practice provide an alternative to the fundamental values of competitive individualism that underpin the education system in Britain (Goodley, 2014). There are various models and definitions of creativity that will be discussed in detail within the Literature Review. However, in general terms, creative practice requires students to engage in a process of exploration and discovery *alongside* teachers and facilitators (Collard and Looney, 2014). This means disrupting traditional power structures within the classroom, where teachers are seen as the gatekeepers of knowledge, and students are the recipients, presenting opportunities for collaboration and co-production as alternative pedagogical relationships emerge. Learning through co-production and collaboration aligns well with crip theory, in that it encourages student *autonomy* without requiring *independence*; Liddiard et al. (2022) explain how difference and disability or impairment foreground relationships of interdependency, which are at the heart of what it means to be human. Rather than adopting an ableist view of human value as a person's contribution to society, interdependency as discussed within crip theory, demonstrates the unconditional and inherent value of being human in relation to others, irrespective of a person's ability to create surplus value (Braidotti, 2013).

Divergent thinking is also seen as a strength in both crip theory and creative learning. To find new and creative solutions to complex problems, it is necessary to view the world in a different way, from a perspective of openness and curiosity so that new knowledge might emerge (Feldhusen and Treffinger, 1980). Similarly, with neurodivergence and disability,

‘differing bodyminds [move] through environments together, navigating barriers and finding pathways both materially and metaphorically’ (Garland-Thompson, 2014, p.154). Here, Garland-Thompson describes how new knowledge emerges when different bodies and minds interact with the world. In this way, both crip theory and creative practice identify the epistemological potential that arises from the ontology of difference as something to be embraced and celebrated.

The kinds of learning environments that would accord with the tenets of crip theory, according to both Abrams, Floyd and Ames (2024) and Mitchell, Snyder and Ware (2014), are those that celebrate difference and diversity as providing unique insight and further opportunities for learning. They must also be flexible and fluid with regards to pedagogy and curricular content, such that there are a variety of tasks available, as well as multiple ways to engage with each individual task. Interdependence should also be valued, with opportunities to work alongside peers, teachers and facilitators in a variety of different roles. Finally, crip time challenges the rigidity and structure of the school day. Flexibility with regards to tasks and learning means that if something is particularly engaging, time and space should be made available to pursue this line of enquiry. Similarly, tasks should be adapted, shortened or paused to meet the physical and emotional needs of different bodies and minds within the classroom. If these conditions can be met, then this would produce an educational environment suited to a diverse student body.

If creative practice is to provide the means for ‘cripping’ educational spaces, however, a theory of creativity must be identified that does not rely upon individual qualities, but is equally accessible to all regardless of individual talent or levels of skill. For this study, in order to concur with the principle of maximum accessibility, an understanding of creativity must be adopted that describes a process that anyone can engage with, irrespective of age, experience or personal characteristics, and not as the domain of a select few. Within the Literature Review, creativity in education will be explored in depth to find a working definition of what creativity is, the conditions that it both requires and creates, and to establish whether these are conducive and complimentary to the co-creation of effective educational environments for neurodivergent students.

1.7 Letting Young People Take the Lead

He keeps trying to get to the glockenspiel. He desperately wants a go. C lets him play a little, but moves him away so that he can carry on with the session. At the end, he hands him a beater and lets him loose! At first, he hammers it frantically, trying to expend all the frustration that's built up over the past hour, but then he falls into a rhythm. He starts to listen carefully and moderate his enthusiasm slightly. To me, it still sounds a bit dissonant, but then C joins in. C follows his lead further down the scale, first as a call and response, and then they start to play together in unison. Neither are leading or following now, but both are 'in tune' with one another. Music suddenly emerges and its quite beautiful. They are playing a duet.

There has been increasing repetition of the importance of 'voice' for disabled young people. Advocacy groups such as the RIP:STARS collective (Research into Practice/Policy: Skilled Team with Ambition, Rights and Strength) give young disabled people a voice in setting the agenda for disability and neurodiversity activism. Through a program of creative and reflective workshops, Brady and Franklin (2023) acted as academic allies to explore the social, cultural and political implications and personal experience of mental health, diagnosis, neurodiversity and intersectionality. The aim was to minimise the distance between academic knowledge and the lived experience of disabled young people, by positioning them as experts in their own lives.

One of the main findings from Brady and Franklin's work was that young people felt their experience was constantly being validated or invalidated by others, through diagnostic processes and mental health services. Diagnostic processes were experienced as lengthy and stressful, and receiving a diagnosis did not necessarily mean access to services or recognition of need. This was positive for some, but experienced as a loss for others. Furthermore, receiving a diagnosis was often followed by an assumption of need, but actual needs were not necessarily met. The medical model was seen as pervasive and 'fixing the problem and the problem is me' (Brady and Franklin, 2023, p.1387). This is consistent with

findings from other studies such as Liddiard et al. (2022), where young disabled people describe feeling that the onus is on them to meet ableist expectations to be fully included within society, and this often means undertaking additional emotional and physical labour to do so.

In response, the young people within the RIP:STARS collective attempted to challenge narratives that viewed them as passive recipients of 'help'. They wanted an end to limitations placed upon their lives by others, to be seen as active agents of change and as experts in their own lives. What becomes clear through Brady and Franklin's work is that narratives of deficit and disability can only be changed by young people themselves, but allies are required to facilitate this change, to provide support and present them with opportunities to discover what they are capable of. In contrast, the young people in Liddiard et al.'s (2022) work chose to challenge perceptions that they were only valuable when independent and 'able,' and instead foregrounded the interdependent and mutually supportive relationships they experienced with both humans and animals that gave their lives meaning and worth.

This thesis aims to empower young people to create positive change within their own lives. For this reason, student voice will play an active role throughout the research process, to ensure that young people's views are accurately represented and that any findings are both relevant and meaningful to participants within their own educational setting. This study will also adopt a Critical Participatory Research approach, situating students as active co-researchers within the research process, with the power to effect meaningful change. The Literature Review which follows will explore some examples where young people have acted as student co-researchers within educational settings to determine the feasibility of this methodological approach.

2. Literature Review

Introduction

The following literature review explores the relationship between creativity and crip theory, in terms of the environments created, the effect creative practice has on young peoples' learning and engagement, and the kinds of accessible educational environments that result, particularly for neurodivergent learners. The first section explores key literature outlining the most prominent theories of creativity, and the implications of these theories for neurodivergent learners. Amabile's Componential Theory of Creativity (2013) is found to provide both the most inclusive and exhaustive description of the creative process and describes the role of creative learning environments in promoting engagement and motivation to learn. The second section focuses on creativity and motivation in greater depth, and explores the effect this has on learning and engagement. Self-Determination Theory (Deci and Ryan, 2008) provides a framework for understanding motivation in terms of the ability to satisfy basic psychological needs for autonomy, competence and relatedness. The implications of this for both neurodiversity and education are discussed. In the third section, the Creative Partnerships Program (2002-2011) is explored as an example of creative practice in education, identifying its influence on creative learning, teaching practice and 'school ethos'. Overall, these three areas provide a rationale for using creative practice to co-create effective educational environments with neurodivergent young people. Finally, a number of studies by other authors are explored, who have used co-production as a means to improve educational environments for neurodivergent young people, to ascertain points of similarity and departure from the aims of this thesis, and the specific ways in which this research will contribute towards knowledge.

2.1 Defining Creativity and the Implication for Educational Practices

J.P. Guilford (1950) was the first to identify creativity as 'an instance of learning' in his landmark address to the American Psychological Association (1950, p.446), stating that everyone has the potential to be creative, but some individuals are possessed of qualities that predispose them to be more creative than others. These personal qualities include

curiosity, fluency (the ability to generate a large number of ideas or potential responses to a problem) and flexibility of mind. In this way, Guilford (1950) formally introduced a distinction between divergent thinking (the ability to generate multiple novel solutions to a particular problem) and convergent thinking (the logical evaluation and comparison of multiple possibilities to derive the most effective solution). It becomes clear in Guilford's writing that divergent thinking is considered to be at the root of creative problem solving, but that convergent thinking is a necessary component to ensure that the solution has value. He explains, 'creative work that is to be realistic or accepted must be done under some degree of evaluative restraint. Too much restraint, of course, is fatal to the birth of new ideas' (Guilford, 1950, p.453).

Torrence (1966) built on Guilford's work to produce the first psychometric test of creative thinking, the *Torrence Test of Creative Thinking* (TTCT), which focused exclusively on markers of divergent thinking; fluency (number of ideas), flexibility (variety of ideas), originality and elaboration (detail). This established divergent thinking as a quantifiable metric in creativity research. As in Guilford's work, convergence thinking was treated as a necessary evaluative but largely uncreative constraint. Other theorists, such as Parnes and Harding (1962) supported this view, suggesting that premature evaluative judgements inhibited creative ideation, and that judgement must be deferred to enable divergent thinking to flourish.

By the 1980's, the strict separation of divergent and convergent thinking styles in creative problem solving had given way to a more dynamic view. Isaksen and Treffinger (1985) proposed that divergent and convergent thinking were necessary at every stage of the creative process, presenting convergent thinking in terms of the 'affirmative judgement' necessary to select and refine creative ideas once they have been generated. Treffinger (1995) later suggested that creative skill required knowing when to shift between idea generation and evaluative selection. Finke, Ward and Smith (1992) introduced the Geneplore (Generate-Explore) model to describe how divergent and convergent thinking processes interact. They suggested that the generation of ideas was immediately followed by an exploratory phase where those ideas were tested for meaning and practical utility. If ideas were found to be lacking in utility, the process would return to its generative phase in a feedback loop that could be described as a creative form of trial and error.

More recently, convergence thinking has been elevated from a necessary evaluative aspect of the creative process to a highly creative act in its own right. Lubart's Evaluation of Potential Creativity (EPoC) battery (Lubart et al., 2011) measures creative potential across multiple domains, where divergent thinking is measured as an individual's ability to generate multiple ideas that are both unique and relevant, and convergence thinking as creative synthesis, measuring an individual's ability to bring multiple disparate elements together, integrating them successfully into a cohesive creative output. In this way, it becomes clear that in order for creative processes to produce outputs that are both novel and of value, complex divergent and convergent thinking processes are equally relevant, and each can be viewed as highly creative in their own right.

Much of the work on divergent and convergent thinking in relation to creativity has focused on the *individual* as the source of creativity, rather than the conditions under which creativity is able to flourish. However, some theorists such as Rhodes (1961) went beyond the individual to develop 'the Four P's' of creativity – person, process, product and press, where personal characteristics such as openness and risk taking, constituted just one aspect of a multi-dimensional creative process. The other 'Ps' explained how ideas are generated, communicated, and evaluated (process), the tangible outcomes of creative practice (product) and environmental factors supporting or stifling creativity (press). In education, the 'press' or 'environment' refers to 'the psychological, pedagogical, and physical factors of any place where learning occurs' (Richardson and Mishra, 2018, p.46). In doing so, Rhodes demonstrated that creativity depends upon a complex interaction between the individual and their physical, social and cultural context.

Following Rhodes (1961), two distinctive strands of creativity theory emerged - those that described individual characteristics, dispositions or cognitive abilities, and those that focused on the necessary conditions for nurturing creativity. The consequences of this for education are important, as person-focused theories raise issues of individual difference, natural talent and the extent to which creativity can be taught. Whereas those that view creativity as a process, constituted by the physical, social and pedagogical environment, are broader in scope and present multiple opportunities for action in educational settings. Both

of these approaches to creativity have been adopted in British schools in recent years, the consequences of which are now explored.

2.1a. Person-focus versus environment-focused approaches to creativity in British schools

In England in 1999, the influential *All Our Futures* report, commissioned by the National Advisory Committee on Creative and Cultural Education (NACCCE, 1999), emphasized the importance of creativity and cultural education for children and young people. It was suggested that creative learning would provide young people with the skills and experience to succeed in an increasingly complex and rapidly changing world. The report recognized that creativity was not solely the concern of the arts, but was also a key element in science, mathematics and humanities, and was vital to help young people develop real-world skills such as problem solving and collaboration. It advocated for a broad, balanced and flexible curriculum that would motivate children to learn, incorporating opportunities for creativity, and encouraging a re-evaluation of assessment methods to reflect the talents and diverse abilities of different students (Robinson, 1999). The most significant outcome of the report was the development of the Creative Partnerships scheme, ending in 2011, which left a legacy of studies that interrogated the relationship between creativity, learning and engagement in schools (Lucas, 2016).

The focus of the Creative Partnerships program was to create educational environments that were more varied and would harness young people's diverse abilities. However, one of the reasons that the programme ended, following a change in government from Labour to Conservative in 2011, may have been difficulties in producing measurable outcomes in relation to creativity (Lucas, Claxton and Spencer, 2013). It was felt that the concept of creativity was ill-defined, and the benefit to children's learning was unclear. The cessation of the project signalled a shift in government policy towards more 'evidence-based practice' in education (Biesta, 2007), and this has influenced the kinds of creativity research that have informed educational policy ever since. A more in-depth discussion of the Creative Partnerships Program follows later in this review.

More recently, between 2015-2019, the Organization for Economic Cooperation and Development (OECD) funded a project across 11 countries called *Fostering students' creativity and critical thinking* (Vincent-Lancrin et al., 2019), to understand how creative and critical thinking might be applied in schools. The findings of the research included the development of various pedagogical resources to 'exemplify what it means to teach, learn and make progress in creativity and critical thinking' for primary and secondary school teachers (OECD, 2024). These were used to inform the Creative Thinking Framework for the Program for International Student Assessment (PISA 2022)¹. This framework is based on Lucas, Claxton and Spencer's (2013) Five-dimensional model of creativity, which states that there are five creative 'habits of mind': inquisitiveness, imagination, persistence, collaboration and discipline, that can be taught and assessed within a classroom setting.

Vincent-Lancrin et al.'s (2019) report was originally commissioned because, despite consensus that creativity has a wide range of educational benefits, creativity itself remained poorly defined in terms of what it *is*, and its purpose in education. Furthermore, there was a concern that if creativity could not be assessed in a standardized way, that this would limit its educational utility. Lucas, Claxton and Spencer's (2013) Five-dimensional model of creativity attempted to reconcile these tensions for pragmatic purposes. This makes it a *person-focused* model of creativity, assuming creativity is a skill that can be taught. They explain that focusing on the learner rather than the environment was a conscious decision, as was advocating for individualised assessment rather than more social and collaborative forms of learning. The view of creativity they adopt is based on purely practical considerations – how to transform creativity into an applied and measurable concept within present educational contexts (Lucas, Claxton and Spencer, 2013).

However, by reducing creativity to five teachable 'habits of mind', some of the potentially transformative power of creative practice in education is lost. Systematic literature reviews of creative learning environments, such as Davies et al. (2013), suggest that the act of assessment itself can disrupt creative relationships and processes in the classroom, affecting

¹ PISA is a triennial study by the OECD that evaluates the performance of 15 year old students in over 80 countries in literacy, maths and science in order to measure the impact of different factors, such as COVID-19 upon education, but also to make recommendations about effective educational strategies and programs.

pupils' overall development of creative skills. This demonstrates that while reducing creativity to five teachable 'habits of mind' makes it easier to assess, it fails to appreciate the complex relationship between students, teachers and the environment, limiting its utility in practice. This may be an example of what McRuer (2006, p.2) referred to as an 'appropriation and containment of the unrestricted flow of ideas' to serve the interests of neoliberal capitalism in education, by reducing creativity to a mental exercise that can be commodified, whilst simultaneously dissociating it from practices of freedom of expression, exploration and discovery that give creative practice meaning and purpose. Atkinson (2022) suggests rather than reducing the learning process to a set of measurable criteria, pedagogical practice should involve 'a process of experimentation without criteria, that attempts to draw alongside the immanence and difference of ways in which learners learn' (2022, p.757).

In contrast to Lucas, Claxton and Spencer's (2013) attempt to standardise creativity, Richardson and Mishra (2018) developed SCALE – Support for Creativity in a Learning Environment, a tool for teachers to determine how learning environments support student creativity. The three main areas found to support student creativity in schools are Learner Engagement, Physical Environment and Learning Climate (Richardson and Mishra, 2018). SCALE was developed by means of an extensive literature review and a series of classroom observations. By combining findings from both data sets, the authors identified elements of the physical environment, learning environment and student engagement thought to be particularly conducive to creative development. They suggest that the physical environment should contain a wide range of resources, with a choice of working areas and flexible design to enable multiple ways of working, including collaboration and group work. The learning environment should promote active discussion and exploration of ideas, encouragement to take risks and make mistakes, and a caring and supportive space in which to do so. This challenges the neoliberal values of independence and performativity in favour of group work, collaboration and discovery through exploration. Finally, the authors suggest that learning and engagement should be open-ended and encourage student choice and active participation.

Robinson and Mishra (2018) explain that although research into creativity is becoming more prevalent, the majority of this research focuses on the psychological dimension of creativity, developing individual attributes such as openness and inquisitiveness. This is echoed by Davies et al.'s (2013), who discovered a lack of empirical evidence measuring the benefits of creative learning environments. However, as learning environments are the element over which teachers have the most control, Robinson and Mishra (2018) conclude that research into this area might have the greatest positive impact on students. The reason for the lack of focus on educational environments to date may be their multi-dimensional nature and the difficulty of assessing the impact of one environment over another.

The politicised nature of educational research is highlighted by Craft (2010) who explores how the social and economic benefits of teaching quantifiable 'skills', such as creative thinking, will always take precedence over research into creativity as an end in itself. 'Wise' creativity², as discussed by Craft (2010), is a means of creating more effective and inclusive learning environments, enhancing quality of life, and improving mental health and well-being. This highlights that, in education, it is not simply a question of how creative practice can be included within the curriculum, but understanding the multiple benefits creative approaches to learning can have on students' personal development. Some key definitional models of creativity will now be explored to establish the relationship between creativity and education, and the most effective definition schools should adopt to enhance creative learning.

2.1b. Defining Creativity: 'Possibility Thinking' and the 'Four C Model of Creativity'

In the mid- to late 20th Century, much of the work on creativity in Britain focused on 'Big-C' creativity (Beghetto and Kaufman, 2008). 'Big-C' creativity refers to the creative works of eminent, influential innovators at the top of their field, such as Darwin's Theory of Evolution, Van Gogh's 'Sunflowers' or Einstein's Theory of Relativity. Later, Craft (1996) introduced the idea of everyday or 'little-c' creativity through her work on 'possibility

² 'Wise' creativity, as discussed by Craft (2010) introduces a moral dimension to creative practice that tends towards the improvement of both individuals and society.

thinking'. Craft wanted to better understand how creative thinking skills develop from young children immersed in playful exploration, to older children learning how to problem-set and solve, using their imaginations to engage in meaningful acts of discovery. The shift from creativity viewed as the realm of a 'gifted' few, to a daily process that we all engage with, was an important one for education. Craft's work on 'little-c' made creativity an everyday occurrence and demonstrated that it was also a teachable skill.

Beghetto and Kaufman (2007) define creativity as 'the ability to produce work that is novel... high in quality, and appropriate (i.e., useful)' (p.73). In their earlier work, they focus on differences between 'little-c' and 'Big-C' creativity. Later, however, they argue that 'Big-C' and 'little-c' fail to account for creative insights that take place during learning (Beghetto and Kaufman, 2007). In some cases, a person may not have acquired the necessary knowledge or skills to make creative products that are meaningful or valuable to others (a necessary component of little-c creativity), but may nevertheless have been transformed by the learning process itself. Similarly, Big-C creativity fails to account for creative professionals who have not yet achieved social and cultural recognition, or whose work may be marginalised due to their social or cultural identity.

Therefore, Kaufman and Beghetto (2009) introduced 'mini-c', acknowledging changes that happen to an individual as part of the creative learning process, and 'Pro-C', recognizing the significant contributions of creative professionals that have not yet achieved critical acclaim. This became the 'Four C Model of Creativity'. They define mini-c as 'the novel and personally meaningful interpretation of experiences, actions and events' (Kaufman and Beghetto, 2009, p.3), aligning with the Vygotskian concept of creative development and learning as 'a transformation or reorganisation of incoming information and mental structures based on an individual's characteristics and existing knowledge' (Moran and John-Steiner, 2003, p.63). Mini-c is the first form of creativity that people experience, often as young children, and it can be nurtured by parents and teachers from a young age.

Kaufman and Beghetto (2009) note that intrinsic motivation is particularly important for mini-c creativity to flourish, meaning tasks must be inherently interesting to sustain a child's attention, despite a lack of mastery or skill. They explain how extrinsic motivation, in the

form of rewards or external pressure, can undermine mini-c creativity, and a continuous and appropriate level of feedback (referred to as the 'Goldilock's Principle') is important to ensure that a child can transition from mini-c to little-c creativity. If a child is excessively praised for their mini-c creativity, they will find it difficult to improve and gain skills in a particular area. Similarly, if they are harshly critiqued, this will negatively impact their self-confidence and willingness to persevere. If, however, a child receives an appropriate level of feedback enabling them to improve, the transition from mini-c to little-c creativity and beyond becomes much more likely.

The ability to shift between mini-c and little-c as creative practice develops is known as 'ideational code switching', and Beghetto and Kaufman (2007, p.77) assert that skilled teachers and mentors are particularly adept at 'recognizing the value of mini-c creativity while at the same time introducing novices to the socially negotiated conventions, standards, and existing knowledge of a domain'. They explain that students must be given the opportunity to engage, play and experiment with their ideas, whilst simultaneously being guided towards personal development. Too *much* focus on assessment can inhibit creative learning, as outcomes overshadow process, and too *little* focus on learning objectives and problem setting means that students are simply engaging in play rather than creative practice. In this case, despite high levels of engagement, few new insights are gained, and personal development is limited. The implication for educators is that balance is key to optimise learning – students should be given time to actively engage with, and enjoy, the process of learning and discovery. Goals should be used to inform the process but should not be the sole focus, as this puts pressure on students and takes the fun out of learning for its own sake. This balance may be even more challenging to achieve for educators who work with disabled and/or neurodivergent students, who are already subjected to a greater number of interventions in their daily routines.

The terms that Beghetto and Kaufman (2007) use in the 4C Model have been widely adopted in the literature (Doleck et al., 2017; Gadjia et al., 2017; Li et al., 2022), but appear to describe qualitatively different phenomena. For example, 'mini-c' creativity could be considered fundamental to all other categories, as *every* aspect of creativity involves learning and the evolution of ideas. The same is true of 'little-c', defined as everyday acts of

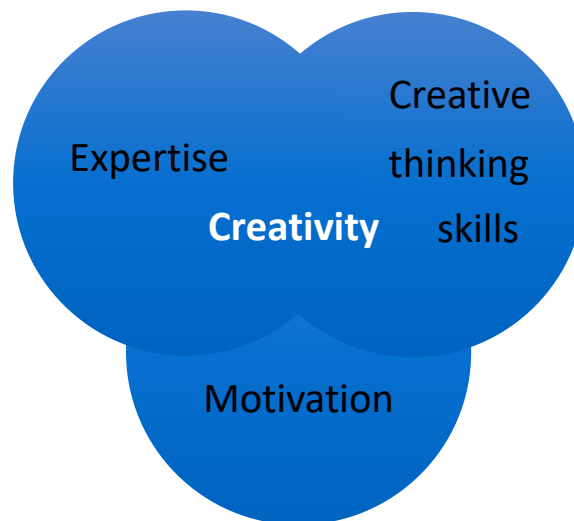
creativity that produce outcomes that are both novel and of value. In contrast, 'Pro-C' and 'Big-C' describe the professional, social and cultural status of creative individuals, which is contingent on external factors such as wealth and social or cultural capital, enabling them to make the most of their knowledge, talents and dispositions.

Mini c and little c describe creativity-as-learning associated specifically with learning through play in childhood. However, it could be argued that both are necessary aspects of *every* creative process. Conversely, Pro C and Big C describe creativity measured by external factors, and are specifically linked to material success. As such, they align closely with the values of neoliberal ableism (Goodley, 2014) where creative merit is measured in terms of productivity, utilizable outputs and value-creation. Under these definitions, creativity is viewed as a means to an end, rather than for the inherent value it confers upon the individual.

This suggests different motivations for different creative behaviours, with mini- and little-c creativity driven by personal interest, and pro- and big-c driven by external rewards such as wealth, status and recognition. For the purposes of this thesis, mini-c and little-c creativity are most relevant to creativity in education, and require intrinsic motivation to flourish. As will be discussed, they can also be negatively impacted by external pressures and normative expectations, such as those commonly found in neoliberal education systems. This implies that pressure to produce results will negatively impact young people's creativity, and their learning more generally.

2.1c Personality and Cognitive-based Theories of Creativity

Fig. 1. The Componential Theory of Creativity



Description: The Venn diagram above shows 3 overlapping circles containing the terms ‘expertise’, ‘creative thinking skills’ and ‘motivation’, with ‘creativity’ in the centre where the 3 circles overlap.

Expertise is knowledge – technical procedural and intellectual

Creative thinking skills determine how flexibly and imaginatively people approach problems

Motivation is the inner passion to solve a problem at hand

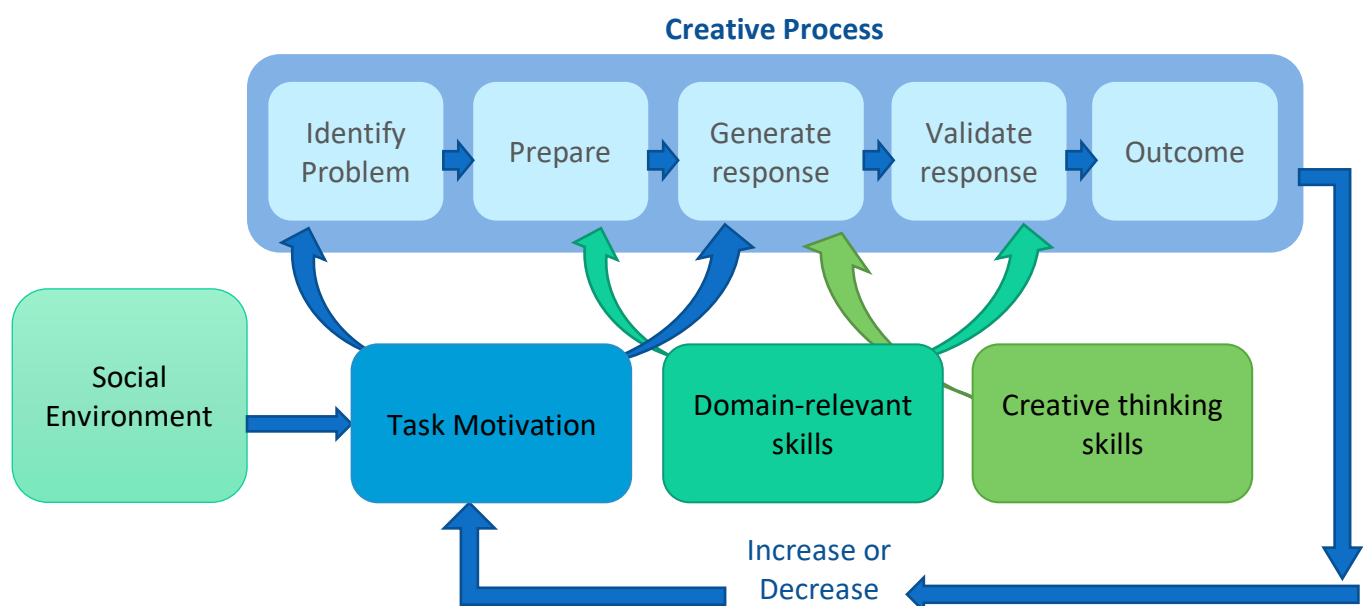
Amabile’s (1983; 1990; 1996) Componential Theory of Creativity is a foundational theory that has been widely influential in the literature (Amabile, 2013). Although it has primarily been used to describe creativity in the workplace, it is also applicable to educational settings. Amabile presents creativity as existing on a continuum (from little-c to Big-C), largely defined by the personal qualities of expertise, creative thinking skills and motivation, where the degree of creativity that results is a function of each of these components and their interaction with one another (see fig.1). In this model, ‘expertise’ relates to technical or domain-specific knowledge as well as practical skills in a particular area. Creative thinking skills refer to a person’s cognitive style – their ability to suspend judgement, take risks,

understand complexity and explore new possibilities when attempting to find creative solutions. Finally, motivation simply refers to a person's motivation to engage with the task itself, and their ability to direct attention towards it.

Although the original Componential Theory of Creativity devised in 1983 appears as above, by 1996, Amabile later expanded and revised the theory, to provide a 'social psychology' of creativity, where the social environment becomes a significant contributory factor to an individual's motivation to engage. Amabile (1996) also expanded on the creative process itself to demonstrate that each of the personal attributes that contribute to creativity (motivation, domain-relevant skills and creative thinking skills) are relevant at different stages in the process, and that successes and failures feed-back to either increase or decrease personal motivation. Amabile's more comprehensive theory of creativity is shown in the diagram overleaf (see fig.2).

Fig. 2. Amabile's (1996) Revised Componential Theory of Creativity

Description: The diagram below shows the three components of creativity – task motivation, domain relevant skills and creative thinking skills, feeding into the creative process at different points, which progresses from identifying a problem, through considering possible solutions, to generating an outcome. The social environment contributes solely towards task motivation.



Whilst the original theory focused on individual attributes, this revised model demonstrates that the social environment (or learning environment, for the purposes of this study) has a significant influence upon a person's motivation to engage, as does the outcome of the creative process itself. It implies that if a person experiences success, their motivation will increase. It also suggests that motivation is determined by a combination of the environment and individual experience of success or failure, meaning that if someone engages in a challenging activity, this could be mitigated by a highly supportive learning environment, such that motivation and task engagement remain high. This has implications for neoliberal-ableist educational environments that place responsibility for learning primarily on the individual, and underestimate the effect of both the learning environment and the impact of success and failure upon the student (Goodley, 2014).

In addition to presenting this expanded theory of creativity, Amabile (1996) also expands upon Beghetto and Kaufman's (2007) definition of creativity itself. She explains that processes should be considered creative if the products or outcomes are both novel and appropriate or useful, *and* that the task must be heuristic rather than algorithmic. Amabile defines algorithmic tasks as 'those for which the path to the solution is clear and straightforward – tasks for which an algorithm exists' (Amabile, 1996, p.35). This contrasts with heuristic tasks which are 'those not having a clear and readily identifiable path to solution – tasks for which algorithms must be developed' (Amabile, 1996, p.35). The important point here is that a task being algorithmic or heuristic does not depend upon what is generally known, but refers specifically to what *the individual in question* knows. This has important implications for education, because it does not matter if the teacher or other external authority knows the answer to a particular problem, *as long as the students themselves do not know*. Then, the task remains heuristic and they are still able to engage in creative exploration, testing different possibilities to arrive at a satisfactory solution.

Amabile's revised theory suggests that creative practice can be used as a means to improving learning environments if the process increases a student's motivation to learn through experienced success. Amabile (1996) explains that increased motivation leads to improved learning through directing attention – the more motivated the individual is, the more readily they will be able to direct their attention towards a particular task and maintain focus. This has implications for some neurodivergent students who find focusing their attention on particular tasks more challenging. However, the theory also implies that some environments are more effective at inducing task motivation than others. Amabile suggests that 'a non-constrained social environment is most conducive to creativity' (1996, p.107). This means the more freedom a person has to act and make decisions, the more effectively they will engage with the process. In contrast to this, mainstream educational environments could be considered highly constraining, in their reliance upon standardised performance measures and normative behavioural expectations. The second section of this literature review will explore the effect that creative practice can have upon learning environments in terms of broadening individual freedoms and reducing constraints on learning.

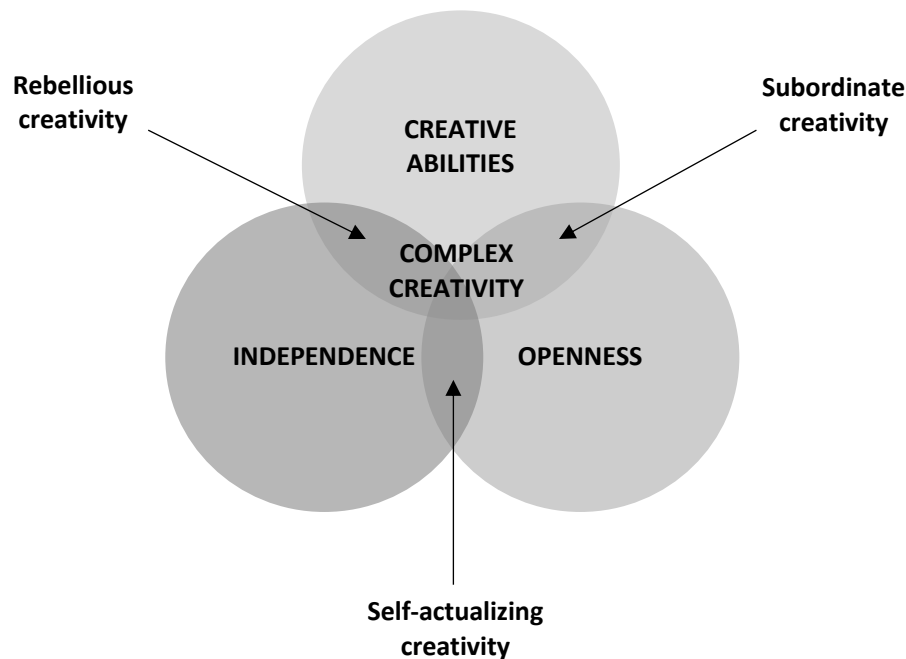
Intrinsically rewarding tasks are a necessary component of creative practice in the work of both Amabile (1996) and Beghetto and Kaufman (2007). Deci and Ryan (2000) demonstrate how intrinsic motivation can be undermined by external factors in the social environment, indicating the importance of the environment in realising creative potential. Environmental factors inhibiting creativity include risk aversion, discouraging new and novel ideas, conformity, maintaining the status-quo and time constraints. All of these have been described by various authors as symptomatic of neoliberal education systems (Biesta, 2020; Ball, 2017) implying that current systems are inconducive with creative thought and practice. Environmental factors *conducive* to creative practice include teamwork and collaboration, creative freedom, encouragement for innovation and trying new things, sufficient task structure to support competent performance, and recognising failure as a valuable aspect of learning (Amabile, 2013). If Amabile's revised Componential Theory of Creativity is considered an example of learning through creative practice, then it implies that these supportive conditions are key to an effective learning environment, and will be explored in greater detail towards the end of this literature review.

The Typological Model of creativity in schools

Based in Poland, Karwowski and Jankowska (2016) present a Typological Model of creativity, an educational theory focused on individual student traits, creative abilities and behaviours considered essential to creative processes. Similar to Amabile's Componential Theory of Creativity, there are three overlapping components. However, for Amabile (2013), it is only when all three components are present that creativity results. For Karwowski and Jankowska (2016), the presence of any two will result in different 'types' of creativity, and when all three are present 'complex' creativity results, which is presented as the most desirable outcome (see fig.3 overleaf).

The three individual qualities that contribute to creative learning are:

1. creative abilities (divergent thinking and creative imagination)
2. openness (to new experiences and ideas)
3. independence (non-conformity and oppositionality)

Fig. 3. Four Faces of Creativity at School**The Typological Model of Creativity**

Description: The figure above shows a Venn diagram with three intersecting attributes of creative ability, independence and openness. In the centre, where all three overlap, complex creativity is formed.

These characteristics are presented on a continuum from highly autonomous to less self-determined, and the combination of these characteristics result in four types of creativity:

1. **Complex creativity** (high levels of creative ability, openness and independence)
2. **Rebellious creativity** (high creative abilities and independence/low openness)
3. **Subordinate creativity** (high creative abilities and openness/low independence)
4. **Self-actualizing creativity** (low creative abilities/high independence and openness)

The authors explain that each of these ‘types’ can be developed and will change over time as a result of educational interventions and child development. For this reason, it may be more accurate to think of Karwowski and Jankowski’s (2016) ‘types’ as behavioural tendencies, rather than personality traits, which suggests something more permanent and

difficult to change through educational interventions. Furthermore, when each of the types are analysed in greater detail, it becomes apparent that they are interrelated with social and cultural factors external to the children.

This theory therefore appears to conflate internal and external contributory factors and presents them as inherent traits. The authors describe children from the most affluent backgrounds positively in terms of 'complex' creativity, and all others are characterized as deficient in some way, with reference to their individual differences and personal traits. Personality-based descriptions of creativity such as this undermine the disability studies approach underpinning *this* study, as they describe a deficit-based model of creative ability, where children are compared and contrasted to one another based upon supposed inherent ability.

This has the potential to problematize difference and increase discrimination in educational settings, by rendering some children as more 'valuable' or educable than others, and placing limits on expected levels of achievement. This model also reinforces the neoliberal narrative of competitive individualism that attributes failure to individual students rather than focusing on insufficient systems that do not provide adequate support for all. Reay (2017) draws upon interviews with over 500 working class school children to reveal the structural inequalities within the British education system and how it favours the social, cultural and psychological knowledge and resources of upper- and middle-class children. This leads to the alienation of working-class students within education and exacerbates inequalities. Karwowski and Jankowska's (2016) theory of creativity appears to support these prejudices by adopting a view that deepens the marginalisation already experienced by disadvantaged students.

Not only does this theory of creativity have the potential to devalue students seen as 'less' creative, but also conflates socio-economic status with descriptors linked to neurodiversity, which is particularly problematic for this study. Runco (2010) criticizes theories such as the Typological Model of Creativity for focusing on traits and personality types, which are by definition stable characteristics. Runco explains that by designating a child as a certain 'type', they become unnecessarily limited by that label. Instead, he suggests creative

potential should be considered separate from creative *performance*, and for educational environments, developing creative potential should be the overall aim as this is something *all* children possess. In doing so, the focus naturally shifts to the physical and social environment to create the conditions for realizing student potential, opening up space for difference where all young people can be valued without placing limits on what they are expected to achieve (Shifrer, 2013).

One useful insight from Karwowski and Jankowski's (2016) Typological Model of Creativity, however, is that individual differences in skills and disposition, learned patterns of behaviour, self-confidence and motivation, all influence a student's ability to engage in creative learning. They suggest differentiated pedagogical approaches are necessary to provide all children with the qualities they need to perform effectively in school.

This observation that a one-size-fits-all approach does not meet the needs of a diverse student population is important, but rather than adopting multiple teaching methods, it could be that creative practice is broad enough to encompass multiple forms of engagement suited to a wide range of student needs. Some interactional theories of creativity will now be explored that focus specifically on environments that nurture creative potential to identify some of the necessary components and their effects.

2.1d. Interactional Theories of Creativity in Education

Interactional theories of creativity provide practical guidance on how creativity can be developed and nurtured, and in education, these theories have arisen mainly as a consequence of programs for 'gifted and talented' students in America. The Schoolwide Enrichment Model (Renzulli and Reis, 1985; 1997; 2012; 2021), developed by Renzulli and Reis is one such program designed as an 'enrichment pedagogy', focusing on particular areas of student interest and ability. Students are offered an open-ended, differentiated and inter-disciplinary curriculum, and develop creative problem-solving skills, which are later applied to real-world problems, culminating in the production of novel products and services (Reis, Renzulli and Renzulli, 2021).

Key to the program is a high level of student motivation, focusing on individual strengths, areas of interest, and access to advanced levels of curricular content. Three levels of engagement form an 'Enrichment Triad Model', where Type I engagement is largely exploratory, exposing young people to problems and new areas of knowledge. Type II focuses on skills acquisition and provides students with training in cognitive thinking skills, personal development and communication skills. Finally, Type III involves applying those skills to real world problems to find creative solutions, both individually or as part of a group. Reis, Renzulli and Renzulli (2021) suggest that the three stages build upon and complement one another, but while the first two stages should be made available to all students, only students with high levels of interest and/or motivation can participate in Type III learning.

Brigandi et al. (2016) found that not only did students engaging in Type III activities continue these interests throughout their academic and professional careers, but that students gained significant benefits from the supportive environment provided by these projects, such as relationships with project mentors and group peers, and exposure to challenging problems leading to a greater ability to self-regulate and work independently later on. Reis, Gentry and Maxfield (1998) also found that classroom teachers who participated in enrichment clusters subsequently introduced more challenging content into their classrooms, as well as advanced problem-solving strategies, creative thinking skills and real-world methodologies to addressing curricular content.

The Schoolwide Enrichment Model (Renzulli and Reis, 2021) is based on an assumption that these teaching methods are effective for 'gifted and talented' students, who supposedly have a higher degree of innate creative ability. The authors also conflate innate creative ability with higher levels of interest and motivation, but do not explore this in depth. It may be that *any* students engaging with these processes would find them inherently interesting and motivational, or that being labelled as 'gifted and talented' increases students' natural curiosity to learn from a desire to do well.

In both person-focused and process-focused models of creativity, the processes described for developing creative skills are remarkably similar; both concur with Amabile's

Componential Theory of Creativity (1996), that subject knowledge and creative thinking skills are essential to creative processes, and that these attributes can be taught. Motivation and interest are also seen as key in all models presented here, although this is only made explicit by Amabile. Finally, Reis, Renzulli and Renzulli (2021) describe in detail the mechanisms by which students' interest and engagement in creative learning can be built and maintained, through progressive stages from initial 'problem setting', through exploration and experimentation, concluding in either reflection or an attempt to find practical creative solutions.

Both person- and process- focused models also reference individual differences as contributing to the efficacy of creative engagement. However, where Karwowski and Jankowski (2016) reference personality 'types', Reis, Renzulli and Renzulli (2021) discuss creative 'talent' as influencing young people's ability to engage in creative tasks. What is apparent in both examples is that individual differences *do* matter when it comes to creative engagement. For the purposes of this study, a view of creativity must be adopted that recognises individual differences in neurodivergent students, but without assuming that this places a limit on what students can achieve. Instead, individual differences should be seen as increasing the possibilities for learning in the classroom. The neurodiversity paradigm (Walker, 2021) explains that difference should be expected within all public institutions, and crip theory (McRuer, 2006; Mitchell, Snyder and Ware, 2014) compels us to view this difference as inherently valuable. Any theory that suggests individual differences restrict learning potential or that certain 'traits' are more valuable than others should therefore be rejected. For the purpose of this thesis, certain ideas, such as Runco's (2010) focus on creative *potential*, rather than creative achievement, are particularly valuable as they do not limit individuals in this way.

2.1e. Neurodiversity, creative abilities and personality traits

Research into creativity produces markedly different results depending upon the definition of creativity used. Jankowska et al. (2018) draw attention to the various ways creativity is conceptualized, particularly within autism research, as originality, flexibility, imagination or even verbal fluency. These conceptualizations lead to different findings depending on the

context, and the authors demonstrate that even research within the same construct can produce conflicting results. For example, some studies show that autistic individuals demonstrate higher levels of 'originality' than their neurotypical counterparts, whilst others have demonstrated less (Jankowska et al., 2018, p.2). This implies that creativity is a complex construct, and treating any neurominority group as homogenous is problematic, as there is as much heterogeneity within neurodivergent as neurotypical populations.

Jankowska et al. (2018) use evidence from these studies to distinguish between cognitive traits and personality traits within the Typological Model, where creative abilities (divergent thinking or imagination) are defined as *cognitive* traits and openness and independence are described as *personality* traits. Their results demonstrate that cognitive creativity is *positively* associated with autistic traits, whilst personality-based creativity is *negatively* associated with autistic traits. The authors acknowledge that heterogeneity within the population is a confounding factor, but their results imply that the typological model of creativity describes (at least) two different things – aspects of cognition and aspects of personality, which may also be subject to social and cultural judgements about what constitutes 'creative' behaviour.

This suggests that the model contains neurotypical bias, such that certain aspects of the theory describe neurotypical personality traits, designated specifically as 'creative' behaviours. The authors also report a general lack of confidence in autistic participants' assessment of their own creative abilities, providing an inaccurate representation of their actual level of skill. Lack of confidence would also presumably affect 'independence', which the authors describe as 'non-conformity... and readiness to oppose the situational induced impact of the group' (Jankowska et al., 2018, p.2). Their study therefore demonstrates the challenges and complexity in person-based theories of creativity, particularly with respect to neurodivergent populations, and that subtle neurotypical biases produce misleading conclusions about what constitutes creativity in neurodivergent people.

Amabile's (2013) componential theory, however, avoids this neurotypical bias, by focusing on the necessary pre-conditions for creativity to flourish. This is even more so for the revised and expanded 'social-psychological' version of the theory, where cognitive

processes are situated within a social context alongside a creative process which feeds back into the development of those cognitive processes. The components of this theory have subsequently been used by person- and process-focused creativity theorists alike to describe the circumstances through which creativity can be developed.

For the purposes of this thesis, Jankowska et al.'s (2018) work is useful to highlight the neurotypical value judgements implicit in theories of creativity within educational contexts. Furthermore, they draw attention to the way theories of creativity confound cognitive and personality descriptors, which may be interlinked when it comes to neurodivergence (one such example being that autistic people are often described as 'introverted' and ADHD people described as 'extroverted'), conflating apparent social behaviours with cognitive and personality types. Amabile's Componential Theory of Creativity (1996), however, makes the relationship between the cognitive components of creativity and the social environment explicit. Although these components are not entirely value-neutral, they avoid some of the more blatant neurotypical biases of other theories.

For the purposes of this thesis, Amabile's Componential Theory of Creativity will be used as the primary working definition of creativity, as it focuses on universal aspects of creative processes rather than highlighting individual differences as some of the person/ality based theories tend to do, which have the potential to exclude or devalue individuals who do not display certain aptitudes. The focus of this research is to minimise exclusionary practices and create effective learning environments for as many different neurotypes as possible, irrespective of their individual differences. However, disregarding individual differences such as those with particularly 'creative' personality traits does place some limitations on the overall scope of this investigation, in terms of the extent to which different individuals might derive benefit from creative learning environments, but in this instance, finding a universally applicable theory of creativity is of primary importance to fulfil the aims of the investigation.

Task motivation is also presented as key to engaging with creative practice, and the component over which the social environment has the greatest influence. As this research aims to co-create effective learning environments with neurodivergent students, increased

task motivation and engagement could indicate conditions conducive to learning, in addition to the efficacy of creative practice as a learning tool. Motivation is also relevant to this particular group of student co-researchers, who have previously experienced exclusion, marginalisation and poor mental health within educational settings, and so the relationship between creativity and motivation will now be explored in greater depth.

2.2. Creativity and Motivation in the Classroom

To develop an understanding of the relationship between creativity and motivation in education, this section explores the concept of ‘effective’ learning environments, interpreted as those which promote active engagement with learning. When students are motivated to learn for its own sake, understand the reason for that learning, and gain useful knowledge and skills that can be used in daily life, this leads to a deeper understanding that is retained for longer (Deci and Ryan, 2008). In contrast, when students are motivated by external rewards, do not understand the relevance of their learning and are uninterested in the subject matter, learning is superficial and more likely to be forgotten over time (Deci and Ryan, 2008). Creative learning is one such example, where students must be fully engaged and utilize existing knowledge and skills to solve problems and find original solutions that are both useful and appropriate. To understand the environmental mechanisms that result in this kind of learning, an exploration of the psychology of motivation is necessary.

As discussed, Amabile’s (1983; 1996; 2013) componential theory of creativity breaks down the process of creative engagement into three main components; creative thinking skills, expertise and task motivation (Amabile, 1983), with the social environment referenced as a fourth, distinct component. Following the development of the theory, motivation, or more specifically, Amabile’s ‘Intrinsic Motivation Hypothesis of Creativity’ became the most strongly contested aspect of this theory, leading Amabile to revise it in 1996³.

The revised ‘Intrinsic Motivation Hypothesis of Creativity’ explores the relationship between intrinsic and extrinsic motivation in depth. Intrinsic motivation describes the motivation to undertake a task for its own sake, through joy, excitement or interest, irrespective of any consequences or expected rewards, characterised by a sense of play rather than work (Hennessey, 2019). Extrinsic motivation, on the other hand, describes a task undertaken for external rewards, incentives or goals, separate from the task (Amabile, 1996). In the original

³ Amabile was originally criticised for adopting too simplistic a view of motivation, claiming that intrinsic motivation improved creativity, whilst extrinsic motivators (such as rewards and incentives) would decrease it.

theory, intrinsic motivation was thought to enhance creativity, whereas extrinsic motivators, such as rewards or financial incentives, were considered detrimental. Throughout the 1990's, however, a number of empirical studies demonstrated that this relationship was more complex than first thought, and in some circumstances, extrinsic motivators could actually enhance creative performance (Hennessey, 2010).

This research on motivation is relevant to education, because how a student is motivated will determine their subsequent level of engagement, and the kind of learning that takes place. It is not sufficient to assume that all students are already motivated to learn, and in the same way. A truly accessible and equitable learning environment attends directly to enhancing every student's motivation to learn as a necessary precondition of an effective education. As the following studies demonstrate, *how* students are motivated to learn greatly influences their learning outcomes.

Intrinsic motivation has been found to enhance problem-solving abilities in the classroom, and leads to greater conceptual understanding, whereas extrinsic motivators only outperform intrinsic motivation on tasks that require memorization and performance under pressure (McGraw, 1978). Conti, Amabile and Pollack (1995) found that intrinsically motivated college students retained information for longer than extrinsically motivated students, and Hennessey and Amabile (1987) found that the major 'killers' of creativity in the classroom included working for a reward, competition, evaluation and restricted choice, with the expectation that work would be judged by others, to have the most deleterious effect on individual creativity overall (Hennessey, 2010). As previously discussed, the neoliberal education system in Britain has subjected schools to various 'performativity' pressures over recent decades, placing greater emphasis on outcomes and assessments above the more experiential aspects of learning (Ball, 2003). For students, this means more emphasis on extrinsic motivators, conducive to memorizing facts and rote learning, but detrimental to creative thinking and engagement, which leads to deeper understanding and better retention of information.

However, it is also possible for the negative effects of extrinsic motivation in the classroom to be 'immunized' against, if students are taught to focus on the inherently interesting

aspects of a task, while minimising the importance of rewards (Hennessey and Zbikowski, 1993). In these 'immunization studies', it was shown that students trained to be intrinsically motivated and who *also* expected a reward, remained highly motivated and demonstrated the greatest levels of creativity compared to those who received no training and either a reward or no reward. This suggests that in certain circumstances, extrinsic motivators can enhance internal motivation, depending on the individual's relationship to that reward; if the individual sees the reward as compensation for undertaking an unappealing task, then this undermines their intrinsic motivation for that task. If, however, the individual's level of investment is maintained, external rewards or motivators have been shown to have no effect or can actually enhance the individual's positive feelings towards a task.

In subsequent replications of these studies, however, the results were found to be far less pronounced, and the authors later concluded that rewards and external constraints do not affect everyone in the same way (Hennessey, 2019). Examples of the differential effects of motivation include Weichman and Gurland (2009), who found differences in the undermining effect of extrinsic rewards on intrinsic motivation across personality types. Chen and Zhao (2013) found gender differences in intrinsic motivation, where females were generally more motivated than males. Finally, Gottfried, Fleming and Gottfried (1998) found that cognitively stimulating home environments led to higher levels of intrinsic motivation at school, even when controlling for differences in socio-economic status. This suggests even in environments that support intrinsically motivated learning, there will still be differences in the degree and quality of the effect depending on factors such as individual personality types, gender and the influence of environments outside school.

As a consequence of this work, more recent research on motivation has shifted away from a dichotomised view of intrinsic versus extrinsic motivation, to a *synergistic* view, that understands external factors can sometimes inhibit and sometimes strengthen intrinsic motivation, depending on context. This is referred to as 'motivational synergy' (Hennessey, 2019), recognizing the complex interaction between the individual and their environment; it is not only the presence of extrinsic rewards that affects our intrinsic motivation, but our experience of acting autonomously or being controlled by those rewards. The implication for this study is that students learn more effectively when they are given both choice and

autonomy in their learning (Deci and Ryan, 2000). Assessments, grades and constructive feedback will enhance intrinsic motivation to the extent that students feel invested in, and have ownership over, their own learning. The same processes will decrease intrinsic motivation when these motivators are used coercively or as a means of controlling student behaviour. Deci and Ryan's (1985) Self-Determination Theory of behaviour will now be discussed, providing a more in-depth understanding of autonomous versus controlled motivation and how this impacts learning.

2.2a. Neurodiversity and Self-Determination in Education

Self-Determination Theory (Deci and Ryan, 1985; 2000) is based on the premise that behaviour is motivated by a desire to fulfil our basic psychological and physiological needs. It claims that when our psychological needs are fulfilled, we experience growth, well-being and personal development; when those needs are not met, we experience tension, anxiety and a lack of well-being. Furthermore, self-determination theory seeks to understand the social and contextual factors that contribute to the fulfilment of our basic psychological needs versus those that stifle them (Ryan and Deci, 2000).

The theory identifies three basic psychological needs that must be satisfied for our mental health and well-being to be maintained: *competence*, *autonomy* and *relatedness* (Deci and Ryan, 2000). Our need to feel *competent* is met when challenges are appropriate to our current level of ability. *Autonomy* is satisfied when we feel that we have a degree of control over our actions, and can make choices about how to progress, while *relatedness* refers to our need to feel connected to others and to be accepted by them (Deci and Ryan, 2000). They explain that it is not possible to satisfy these psychological needs in environments that are overly challenging, controlling or judgemental (i.e. where the potential for rejection is high). This could apply to competitive educational environments, where students are valued according to their ability to achieve.

Motivation for learning has been shown to remain high in autonomy-supportive classrooms, characterized by empathic teachers, opportunities for choice and self-direction and a rationale provided for rules and restrictions (Vansteenkiste, Lens and Deci, 2006).

Conversely, in classrooms where students are coerced or pressurized to conform and where rewards and sanctions for behaviour are salient, autonomous motivation is undermined. Numerous other education studies have demonstrated the relationship between intrinsically motivated behaviours and the satisfaction of these basic needs. For example, Deci et. al (1991) found that satisfaction of autonomy, competence and relatedness were positively associated with intrinsic motivation in the completion of academic tasks. Similarly, Cheon et al. (2016) found that that students' use of self-regulated learning strategies predicted greater satisfaction of autonomy, competence, and relatedness, which subsequently led to higher academic achievement.

Not only does the fulfilment of our basic psychological needs directly affect our motivation and engagement, but the way we are motivated changes according to how these needs are satisfied. This is described as a process of *internalization* (Deci and Ryan, 2000), whereby external rules and regulations are identified with, and assimilated into our sense of self. For example, if we believe that working hard at school will lead to a better job, and this is a personal aspiration, what was originally an external regulation becomes internalized, and behaviours are brought into harmony with our other personal values. Internal regulation is also associated with greater persistence, higher performance and better mental health and well-being (Deci and Ryan, 2000) leading to more focused engagement, and better conceptual understanding (Vansteenkiste, Lens and Deci, 2006). This suggests that effective learning environments must not only motivate us to learn, but help us to view education as something inherently valuable and meaningful within our own lives. Only then can we become *self*-motivated with respect to learning, leading to long-lasting positive change that extends beyond the environment itself.

In later work, Deci and Ryan (2008) moved away from intrinsic/extrinsic descriptors of motivation towards autonomous versus controlled motivation, to account for the processes of internalization and introjection described. Autonomous motivation includes both intrinsic and extrinsic motivators that have been assimilated into one's personal value system. Controlled motivation includes extrinsic motivators and behavioural regulations that have been only partially internalized or introjected, in the form of fear, guilt or shame that drive behaviour in a negative way.

Environmental factors determine the extent to which we internalize extrinsic motivators, and the quality of this internalization (Deci et al., 1994). Autonomy-supportive educational environments are low-pressure, with opportunities for decision-making and choice, where teachers are able to empathize with student perspectives, and feedback is given to enable student progression. Deci et al. (1994) explain that it is also important to provide students with a meaningful rationale for engaging in tasks, as this helps them to understand the personal relevance, and where their perspectives differ from the teacher, this is directly acknowledged and discussed to reduce internal conflict. Conversely, environments that do not support student autonomy, that are pressurized, coercive, and emphasize competition over cooperation, lead to introjection and potentially increase disruptive behaviours (Deci et al., 1994). For Mitchell, Snyder and Ware (2014), standardized curricula are problematic in devaluing the richness and diversity of the student body and attempting to produce a 'standardised' child. Instead, they suggest that young people should be taught to value their unique perspectives, and the personal experience that they bring to the educational encounter.

These findings are relevant to this thesis because creating conditions for students to behave autonomously means more than simply providing opportunities for decision-making. It means teaching students to value themselves, to have confidence in their own capabilities, and to be an active participant in their own learning. It also has implications for the student-teacher relationship, where students must be provided with opportunities for exploration within supportive contexts, so that they feel empowered to act independently, and are able to directly experience the relevance of their learning encounters.

Self-Determination Theory suggests that autonomy-supportive environments enhance intrinsic motivation because when our basic needs for autonomy, competence and relatedness are fulfilled, we are able to internalize and integrate reasons for acting and make them our own (Vansteenkiste, Lens and Deci, 2006). This implies that in order to foster engagement and a commitment to learning in young people, they must feel that their autonomy is respected, that learning is in their own interest, the level of challenge is suited to their skills and abilities, and that taking part in activities will lead to social cohesion and

acceptance. Autonomy-supportive environments have been linked with educational benefits including improved academic outcomes and well-being (Allen, Hauser, Bell and O'Connor, 1994; Levesque et al., 2004).

Ableist attitudes in education often frame neurodivergent students and those labelled with learning differences and disabilities as being less self-determined than their neurotypical or non-disabled peers (Walker et al., 2011), where 'self-determined' refers to opportunities for personal agency versus external control. However, as Dyi Huijg (2020) explains, this distinction is not clear cut in relation to either neurodivergence or disability, as it relies upon normative assumptions about ability and a person's capacity to act in a given situation. Dyi Huijg gives the example of the physical tics that a person with Tourette's might experience as an example of not having agency over an aspect of one's behaviour. The implications of this for co-creation in research with neurodivergent students will be discussed in more depth in the methodology chapter of this thesis.

The relationship between agency, independence and self-determination for neurodivergent and disabled people is explored further by Liddiard et al. (2022). They highlight how people are often valued by others for their abilities – the ability to act, think, feel, choose and create for example. Individuals that are more reliant on others in these respects frequently experience exclusion. They suggest the response to this should be twofold; firstly, as a society, we should challenge the value we attach to autonomy and independence, and better appreciate the value of interdependency and mutual support. However, we should also understand that individuals who rely on others for support in their daily lives are even more in need of opportunities to exercise free will and make independent decisions than their peers.

This complex relationship between autonomy/agency and inter/dependency is discussed because, as Deci et al. (1992) demonstrate, when young people labelled as having special educational needs are taught in environments that support autonomy and competence, they show greater conceptual understanding, self-esteem and reduced anxiety. In this environment, students also demonstrate more highly developed creative abilities (Amabile, 1983). It appears, then, that while agency and self-determination are universally valuable,

they do not require independence, and can be nurtured in situations of interdependency and mutual support. What matters is choice and active engagement in a process.

Walker et al. (2011) adopt a social-ecological approach to self-determination theory in the classroom to create more effective educational environments for neurodivergent students, particularly those with autism. A social-ecological approach acknowledges the complex interactions between individuals and their environment influencing the development of behaviour (Shogren and Simpson, 2010). It also considers individual traits and behaviours in terms of their adaptivity within a particular context, and their contribution to individual and group dynamics. From a social-ecological perspective, there is the possibility for 'positive niche construction' in education (Armstrong, 2012), where the 'least restrictive environments' are created for neurodivergent people to flourish. Positive niche construction means creating environmental conditions that are particularly suited to a person's individual strengths, skills and preferences, increasing the chances that they will experience success. Creating 'least restrictive' environments means removing barriers to participation and engagement, such that a person no longer experiences disadvantage and can participate on a par with their peers.

One important aspect of 'positive niche construction' for neurodivergent students is a strengths-based approach to individual difference, and creative practice can support this. As Armstrong (2012) explains, terms used to describe neurodivergent characteristics in traditional educational contexts (such as hyperactivity, distractibility and impulsivity in ADHD for example) often have negative connotations. However, when those same characteristics are described in creative contexts, they can take on much more positive affirmations (such as creative energy, divergent thinking skills and spontaneity) (Armstrong, 2012). This demonstrates that it is not just the characteristics of an individual learner that are important, but their characteristics *in relation to* a particular learning environment, and these characteristics can be viewed positively or negatively depending on how well adapted the environment is to meet the individual's learning needs.

An 'ecological niche' refers to a particular set of environmental conditions that meet the specific needs of an individual and enable them to thrive. In neoliberal education systems,

creating ecological niches is challenging due to the normalizing forces at work, including external pressures to adhere to the most 'efficient' and 'effective' teaching methods (Biesta, 2020), leading to a lack of adaptability and choice within the system. However, Walker (2011) suggests that taking a social-ecological approach to self-determination theory in education means providing students with real-world opportunities for engagement that develop an internal disposition towards self-determination. For neurodivergent students, this would mean opportunities for

decision-making... problem-solving skills; goal setting and attainment skills, self-management skills... self-advocacy and leadership skills... perceptions of control ...efficacy and self-awareness (Walker et al., 2011, p.477).

But more than just providing opportunities to exercise these skills, Walker et al. (2011) suggest that students should be supported in developing them, where each one is broken down into more fundamental steps such as *identifying a problem, listing possible solutions, predicting possible outcomes for each solution etc.* Furthermore, they suggest that students should also be taught strategies to deal with the emotional affect of taking intellectual risks, and the uncertainty that accompanies this. Studies show that when autistic students are provided with opportunities to exercise their autonomy and make decisions in this way, behaviours traditionally perceived as challenging decrease, and adaptive behaviours become more prevalent (Shrogen et al., 2004).

While Self-Determination Theory highlights the importance of autonomy-supportive learning environments, and internal motivation, Walker et al. (2011) suggest that for neurodivergent and disabled students, creating appropriate educational environments may be even more vital to learning, and also more complex. By adopting a social-ecological approach to self-determination, they demonstrate that learning can be carefully scaffolded, where students are taught essential skills such as problem-solving and goal setting, as well as being given opportunities to exercise those skills, increasing their chances of success and feelings of self-efficacy, to enhance their motivation for learning.

2.3 Creative Pedagogies in Practice

Towards the end of the twentieth century, there was a shift in education from the traditional role of teacher as 'sage on the stage' to 'guide on the side', transferring pedagogical focus from teacher to student (McWilliam, 2008). However, McWilliam argues that, although still a widely adopted approach, 'guide on the side' is now an insufficient model for education in the twenty-first century, due to our changing relationship with knowledge, information and the demands of a complex shifting social and cultural environment. He suggests that both teachers and students should act as co-creators of learning, designing, editing and assembling cultural products, where the teacher's role becomes that of 'meddler in the middle' (McWilliam, 2008, p.263).

This method, McWilliam explains, moves away from devalued transmissive forms of pedagogical practice, to more experimental forms of learning, where young people are encouraged to play, explore, take risks and solve problems through active enquiry and investigation. A pedagogy of 'meddling in the middle' is therefore characterized by the ability to tolerate confusion and uncertainty, and to learn from failure. This requires the teacher to model experimental, risk-taking behaviour, demonstrating a tolerance for failure as well as an inquisitive and questioning disposition to encourage student interest and motivation. Removing the teacher from the position of absolute authority opens up possibilities for other perspectives to be explored, which aligns well with the tenets of crip theory and the potential for curricular cripistemologies to be realised (Mitchell, Snyder and Ware, 2014).

However, McWilliam (2008) also describes the teacher's role as 'collaborative critic' and 'authentic evaluator' (p.263). This belies the implication that 'meddling in the middle' necessitates a more equal relationship between student and teacher. Instead, the teacher still retains some elements of 'guide on the side' whilst being able to transition into 'meddling' as required. What seems important here is not the specific role that the teacher performs, but the disposition of openness and inquisitiveness towards learning that allows new possibilities to emerge. This is an important consideration for the creative facilitator/researcher within this study, attempting to facilitate students' creative practice,

whilst simultaneously supporting their development as student co-researchers. Because creative practice is both open and exploratory in nature, both forms of engagement should be supported, as well as the facilitator's transition between them, in response to the needs of students as they engage with the process.

2.3a. Creative Partnerships

Aspects of both pedagogical approaches have been well documented with respect to creative learning. The Creative Partnerships Scheme in England (2002-2011) forged relationships between creative professionals, arts organisations and schools to deliver a program of creative practice to students, in addition to their regular curriculum (McLellan et al., 2012). The role of creative practitioners in the classroom was not to replace the teacher, but to creatively engage teachers alongside their students, pushing them beyond familiar routines and introducing new possibilities for teaching and learning. The intention of Creative Partnerships, therefore, went beyond providing opportunities for students, and aimed to create change in teaching practices more generally. However, teachers were seen to compliment practitioners through good subject knowledge, an understanding of how to structure and support learning, and were able to target activities at an appropriate level (Collard and Looney, 2014). As a result, teachers reported changes in their personal values, as well as an improved ability to conceptualize and make connections between new or disparate ideas (Collard and Looney, 2014).

The kinds of creative pedagogy that emerged following engagement with Creative Partnerships included an increased willingness to explore ideas collaboratively with students. This created a culture of openness where students felt safe to propose unusual ideas without fear of criticism, and where they could expect to be taken seriously (Cremin and Chappell, 2021). There were also opportunities for student autonomy and agency in the classroom linked to teachers' ability to be flexible and change course in response to students' ideas (Jeffrey, 2006), as well as opportunities for co-construction, group work and collaboration, where teachers were willing to take on the role of co-learners alongside their students, sharing personal interests and exploring their creative potential (Cremin and Chappell, 2021). Valuing student contributions in this way helps to challenge tokenistic and

inclusionist teaching practices, as all perspectives are valued and contribute meaningfully to the creative learning process.

To create this open and exploratory learning environment, a number of necessary preconditions became apparent; firstly, Burnard et al. (2006) found that children needed *time* to explore and immerse themselves in creative activities. For this, teachers needed flexibility to allocate sufficient time to creative tasks; secondly, teachers needed to feel supported by senior leadership to take pedagogical risks (Davies et al. 2013); finally, teachers needed to feel confident enough in their own knowledge and skills to engage in open learning alongside their students. Where these conditions did not hold, teachers reported that they felt unable to continue with the practices that formed part of the Creative Partnerships experience (Collard and Looney, 2014).

Galton (2010) investigated differences between creative practitioners and teachers in the classroom, and the consequent effect on pupils' learning and engagement. A number of differences were initially noted which could be attributed to differing expertise and responsibility, but most notable was the disparity in pressure that each of them experienced within their professional roles. As one teacher within Galton's study explains,

“Teachers often get defensive and I think this is because lots of them aren't able to teach as they wish but are constrained by targets, other initiatives and concerns of the management. Allowing pupils to take ownership is a big risk”
(teacher quoted in Galton, 2010, p.371).

This sentiment is echoed in Davies et al. (2013) literature review of over 200 articles related to creative interventions in schools which found that factors inhibiting teachers use of creative practices in the classroom included neoliberal 'performativity' pressures, time pressures and curriculum constraints.

External pressures and a focus on outcomes can have a deleterious effect on mini-c creativity and exploration (Beghetto and Kaufman, 2007). If these values are not embodied by the teacher in the classroom, then possibilities for creative learning, exploration and play

are greatly diminished. Ball (2003) describes the consequences of a culture of performativity on teachers, where they feel they are constantly being observed, monitored, and judged on both their own performance and that of the children. This creates an incentive to focus on outcomes over processes, and causes feelings of anxiety about multiple demands on their time. Ultimately, teachers may even become alienated from their own practice, feeling forced to make decisions based on measurable outcomes rather than what is of greatest benefit to the child. Ball describes this as the moment where 'value replaces values' (Ball, 2003, p.217), and it is particularly relevant to the efficacy of creative education.

In order for creative practice to be effective, teachers must feel supported to engage in creative *teaching*, or teaching *for* creativity. 'Meddling in the middle', as described by McWilliam (2008), requires teachers to feel confident enough in their skills and knowledge to co-create alongside their students, relinquishing some of their control to enter into the unknown where new possibilities for learning might emerge. Secondly, they must have the flexibility to adapt and respond to what emerges during the creative process, and this may also mean flexibility with respect to *time*. This correlates with the notion of 'crip time', as described in crip theory (Kafer, 2013), where rather than expecting students to adapt to normative time frames, time is shaped according to the learning needs of individual students. Finally, teachers must feel supported by their institution and senior leadership team to take pedagogical risks, and this means alleviating some of the pressures on teachers to perform and produce results.

Developing school ethos in this direction was one of the strategic priorities of the Creative Partnerships Programme. In general terms, 'school ethos' defines the parameters of what is possible, and the extent to which alternative practices can be explored and implemented in the classroom. Bragg and Manchester (2011) view ethos as emerging from the material and social environment, and continuously negotiated, representing the values of the school, but also reflecting the wider values of the staff, students and the community of which the school is a part. They identified three ways that school ethos was enhanced through engagement with Creative Partnerships as 'considerate', 'convivial' and 'capacious'.

‘Considerate’ refers to practices of mutual respect, reciprocity and fairness, as well as a more general respect for students’ individual cultures, histories and life experiences. (Bragg and Manchester, 2011). ‘Conviviality’ refers to the importance of fun and enjoyment in learning, but also places an emphasis on building positive relationships and working together. ‘Capaciousness’ describes an overall broadening of possibilities that occurred in Creative Partnerships schools; physical spaces were used in different ways, but space was also created for students and teachers to explore, and roles expanded to create new ways of being together. For the authors, capaciousness means valuing difference and diversity over conformity, and creative practice is seen as key to enabling this.

2.3b. Capaciousness, Neurodiversity and “third spaces”

When Bragg and Manchester (2011) describe creative learning environments as ‘considerate’, ‘convivial’ and ‘capacious’, they refer to the performance of an underlying set of values, where hierarchical structures are disrupted, space for alternative possibilities emerges and difference is valued. They suggest these values constitute a necessary precondition for creative exploration, and that engaging in creative practice supports these kinds of relationships. As previously discussed, the values required for successful creative exploration align well with those of crip theory, and have the potential to disrupt neuro-normative educational practices through valuing and respecting difference, as well as being open to alternative ways of being, and the knowledge this brings.

Similar observations were made by Hall and Thompson (2017) when comparing the practices and pedagogies of artists and teachers within schools. They take a broad view of pedagogy that includes ‘relationships, conversations, learning environments, rules, norms and culture within the wider social context’ (p.58), and note that artists in schools demonstrate what they call hybrid ‘signature’ pedagogies. Signature pedagogies are neither creative practice nor teaching, but a mixture of both, involving the creative practitioners whole being in relation to their practice, which they demonstrate pedagogically, and invite the students to participate in alongside them. Consequently, there is a sense of the student *becoming* a practitioner/artist by adopting this stance, and a ‘third space’ is created where

the student is given the opportunity to explore their new identity. Hall and Thompson explain:

the combination of knowing, doing and being that make up signature pedagogies is therefore not separable into distinctive elements: the epistemological and ontological learning process together, at the same time, and through one pedagogical practice (2007, p.60).

These 'third spaces' of creative pedagogical practice are characterized by Hall and Thompson (2007) as more permeable, both physically and socially, often resulting in the rearrangement of classrooms, moving into corridors, outdoors, or out of the school altogether. The outside is often invited in, in the form of stories, personal experience and local knowledge, and relationships also become more flexible. This enables students, teachers and creative practitioners to interact in different ways, with individual knowledge and experience forming a valuable part of the creative process. Time is treated more fluidly in this 'third space', responding to both the needs of the practitioners and the practice itself. This could prove particularly beneficial for neurodivergent learners, as third spaces provide opportunities for neurodivergent experience to be valued, where time can be adapted to suit individual learning needs.

This was demonstrated when permeability of space and fluidity of practice, described by Hall and Thompson (2007), was seen to have a notable effect on the way difference and disability were negotiated. They explain that whereas in regular lessons, tasks might be changed or simplified to accommodate different learners 'needs', the artists did not change tasks, but assumed 'all children and young people were capable of having ideas, making meaning and participating' (p.61). The artist therefore facilitated the most effective way for different children to engage with the same process. In doing so, difference was not highlighted as problematic and in need of accommodation, but was anticipated and formed a part of the practice itself. This helps to address some of the more subtle forms of exclusion that students might encounter on a daily basis, and the experience of not having to be 'accommodated' has the potential to be positively transformational.

The role of the artist/creative facilitator in the program was also explored. Pringle (2008) investigated this from a practitioner's perspective, as engaging in a process of enquiry, actively investigating a particular theme or issue, and making use of skills and personal experience to navigate the process creatively and critically. This involved self-confidence to take risks and a willingness to fail, as well as playfulness and the ability to respond to circumstances as they developed. Many of the artists considered themselves to be skilled in managing the unexpected and keeping an open mind, and regarded creative practice as a form of conceptual enquiry that required the practitioner to use all of their knowledge and skill to gain new insights and formulate a meaningful response.

Rather than teaching the students directly about creative practice, the practitioners tended to model exploratory and investigative behaviours, acting as mentors, but also as co-learners, and engaging students in a form of apprenticeship in different creative disciplines. Although the practices themselves were modelled, the personal qualities necessary to engage in creative practice were actively expressed. For example, time and energy were devoted to the development of student ideas. These ideas were then interrogated to expand the students' critical and reflective abilities. Students were encouraged to take risks, and failure was explicitly addressed as a necessary and valuable part of the creative process. In general, experience, feelings, intuition and the process itself were regarded as more valuable than the end product. When it became necessary to focus on outcomes, the creative practitioners skilfully managed this process to ensure that the students did not feel alienated (Pringle, 2008).

What both Pringle (2008) and Hall and Thompson (2017) demonstrate is that the 'signature' pedagogies of creative practitioners differ from the 'default' pedagogies of the regular classroom, in that the ontological stance of the creative practitioner towards their work becomes important. The creative practitioner models a way of being that students are invited to adopt towards creative practice which includes curiosity, openness, experimentation, and an engagement with personal interests and abilities that will compliment and inform the work.

2.3c. Pedagogies of Taking Care and the 'Gift of Otherness'

In order to fully embrace the tenets of crip theory within the classroom, however, it may be necessary to go further than either Bragg and Manchester (2011) or Hall and Thompson (2017) suggest. Atkinson (2022) attempts this with what he calls 'Pedagogies of Taking Care', suggesting that to receive the 'gift of otherness' from a particular learning encounter, it is necessary to move beyond established modes of practice and thought. For Atkinson, the 'gift of otherness' means placing oneself in a position of existential uncertainty, which can be both a positive and generative experience. This foregrounds teaching and learning as a reciprocal process in the most fundamental sense, where both teachers and students must remain open to learning from one another.

Teachers bring established frameworks of practice and knowledge, whereas students bring different ways of learning, interpreting and constructing information. The teacher must therefore create space for the diverse subjectivities of students to emerge. This creates existential uncertainty, but also presents opportunities for new forms of practice to develop in response to this encounter with 'otherness'. With respect to neurodiversity in the classroom, this implies that under the right conditions, neurodivergent students will demonstrate their learning needs, and the teacher's role is to establish practices that respond appropriately to that need.

In this view, both teacher and student are simultaneously undergoing processes of change, and for Atkinson (2022), creative practice is particularly well suited to the reciprocal exchange of 'becoming-making', as creativity requires producing something new and entering into the unknown. 'Taking care' is also an important aspect of this speculative work, as the teacher must have a genuine concern for, and understanding of the student's orientation towards their own learning. For Atkinson, this produces an 'ethico-political challenge' (Atkinson, 2022, p.6), as the teacher values and responds to the difference and diversity of individual learners, whilst simultaneously constructing a shared experience which everyone can effectively participate in.

What emerges is an educational space that is both collaborative and co-constructed whilst also actively embracing diversity. Atkinson (2022) contrasts this with neoliberal educational spaces premised on competitive individualism, which are both rigid and hierarchical, as opposed to fluid and (relatively) horizontal. In neoliberal educational spaces, education services the production of human capital. This means that academically 'successful' students, who are able to attain higher grades, have a greater value (and are a safer 'investment') than those struggling to achieve (Atkinson, 2022). In the spaces described by Atkinson, however, education serves the purpose of human flourishing, and therefore no student's capabilities or learning potentials are placed above those of any other. He describes this as 'convivial', expanding on Bragg and Manchester's (2011) more collaborative definition of conviviality, to emphasize the necessary precondition that everyone's learning has equal value.

Pedagogies of taking care (Atkinson, 2022) can also be viewed as an expansion of the 'signature pedagogies' described by Hall and Thompson (2017), in terms of a teacher's attitude of curiosity, openness, a willingness to experiment and make mistakes. He suggests that these dispositions should be turned towards pedagogy itself, in the form of 'speculative pragmatism' (p.90), to enable imaginative responses to individual learning needs and novel situations. In this way, the student becomes the teacher, presenting the 'gift of otherness,' which requires 'a multiplicity of strategies that are able to respond effectively to the divergent ontological grounds of... student's modes of learning and which, in turn, expand pedagogic work' (Atkinson, 2022, p.187). This does not mean abandoning what is already known, but using that knowledge in a spirit of openness to encounter difference and create something new.

2.4 Studies that use creative practice and co-production to create more effective educational environments for neurodivergent young people

There are a number of recent studies that use creative practice to co-produce more effective learning environments with neurodivergent young people. One of the main reasons for adopting participatory approaches in these examples is that neurodivergent experiences and expertise are generally under-represented in research (Kelly et al., 2025; Coldrick and Ly, 2025; Ward, 2024). Co-production provides an opportunity to elicit the authentic views and experiences of neurodivergent young people by directly or indirectly deconstructing existing relationships of power. Creative practice is used in this work as a means of facilitating the authentic expression and engagement of the young people, as creative media are often multimodal and flexible, facilitating multiple forms of engagement and expression, and reducing reliance on predominantly verbal forms of communication (Ward 2024).

The studies discussed below all interpret 'co-production' in different ways, ranging from processes of consultation and feedback to examples of full and critical participatory action research that attempt to subvert hierarchical power structures, involving student co-researchers at different stages of the research process. These methodological differences reflect the outcomes that each study aims to achieve, from developing theoretical design ideas and spatial adaptations in schools, through designing effective communication tools and creating inclusive learning spaces, to more holistic changes in educational policy and practice. Considering each in turn will make it possible to discern which aspects most closely reflect the aims of this study, and what this thesis may be able to contribute to the field.

2.4a Empowering young people to design their own physical learning spaces

Neurodivergent students have the lived experience and personal expertise to understand which aspects of the physical environment best meet their needs, although they may lack the design experience to know how to translate this knowledge effectively. McAllister and Sloan (2017) sought to overcome this issue by working with a group of autistic secondary school children aged 13-18, providing them with the tools to design their ideal school

environment. The rationale was that many autistic people find the sensory environment difficult to manage, and are therefore uniquely positioned to provide critical insight in the design of school environments that would work for all pupils, taking into consideration aspects that professionals might overlook.

To ensure that the students' designs met the minimum standards and specifications for a school building and were both practical and realistic, the authors provided a 'jigsaw kit' of pieces/rooms/areas which the students could arrange and position as they wished. Through four highly tactile workshops, the students used the jigsaw kit to map out, visually critique and construct their ideal autism-friendly school. This interactive and tactile method of collaborative design avoided some of the limitations of predominantly verbal and linguistic focus groups, and enabled the pupils to challenge the spatial limitations and rationale of their existing school environment.

A number of recurrent themes emerged throughout the process; the first was the inclusion of multiple playgrounds. Having multiple places to go to 'let off steam', and for different kinds of recreational activity was seen as important, as well as the need to feel safe in those spaces. Security was the next most evident consideration, with many choosing to locate the staff room and sixth form common room in a central position. This was followed by noise and comfort, with a number of pupils stipulating that rooms should be soundproofed and there should be no school bells, but a quieter speaker system in each classroom to announce the end of lessons.

This study exemplifies the ability of autistic students to design educational environment to meet their sensory needs under supportive conditions. Their designs maximised the flexible use of the space, and incorporated the logical placing of facilities as well as taking into consideration the needs of more vulnerable students. This demonstrates a high degree of design competency, but also suggests that students who have experienced exclusion within built environments are best placed to design more inclusive spaces for all. Unfortunately, no tangible outcomes resulted from this work, and the designs were not subsequently implemented to change or adapt the pupils' existing environments.

Other studies, such as Kelly et al. (2025) go further than McAllister and Sloan (2017), adopting a co-design play-based methodology, working with groups of neurotypical and neurodivergent students aged 10-12, to establish principles of inclusive design that are transferrable to different contexts. Kelly et al. (2025) worked alongside young people to co-design inclusive school playgrounds. They made physical prototypes, as well as sculpture, drawing and journaling to imagine play spaces that catered to a wide range of sensory and social preferences. Arising from this creative investigation, the students established four core design principles of 'sensory', 'social', 'challenge' and 'nature' as well as the need for a 'prospect refuge,' or quiet, safe space to retreat to whilst still being able to see and play alongside other children. When playground design considered all four of these design features, it was found that young people were able to play for longer with more positive social outcomes for the neurodivergent students.

Both McAllister and Sloan (2017) and Kelly et al. (2025) use creative methods to gain valuable insights from neurodivergent young people as to what would constitute inclusive design in their educational spaces. Both discovered design solutions that would not have been achieved by adult designers or neurotypical researchers alone. This demonstrates the importance of taking steps to gather genuine insight from neurodivergent young people, and how creative methods can be an effective way to achieve this goal. However, neither study was able to realise the designs co-created with the children during the research process and co-design was more limited than co-production might have been, in that students were given fixed parameters in both cases, such as the 'jigsaw kit' provided by McAllister and Sloan (2017) that may have limited the scope of their ideas in some cases. Also, the young people were not offered the means to create real change within their own educational environments in either case, but both studies managed to gather important insights into what constitutes effective inclusive design in schools that may be transferable to future work.

2.4b. Communicating preferences through creative methods

Many studies aimed at neurodivergent young people discuss the Double Empathy Problem (Milton, 2021) as an issue that leads to neurodivergent young people's preferences and

lived experience being under represented in research and daily life. Some studies have consciously employed creative methods and methodologies as a communicative tool to directly address this issue and elicit authentic responses from neurodivergent participants. Lewis et al. (2023) use a variety of creative methods (such as model-making, mapping, drawing and photography) to explore the educational experiences of 13 neurodivergent young people transitioning from primary to secondary school. The research was co-produced with the young people, taking particular care with the methods used to elicit authentic responses from the young people, due to the historic lack of first-person accounts of neurodivergent young people in the literature (Lewis et al., 2023). Using creative methods, the authors were able to gain insight into the young people's hope, fears and anxieties about transitioning to high school without relying on verbal fluency alone.

Prior to data collection, preliminary meetings with parents/carers took place to identify the likes, dislikes and individual interests of student co-researchers, but also to discuss preferred modes of communication and the meaning of particular behaviours, such as ascertaining indicators of distress. Similarly, the use of a 'getting to know you' session before the research commenced built trust and familiarity with the researchers. This relationship of mutual trust and understanding enabled student responses to be interpreted more accurately, and for the researchers to respond effectively to the students' needs throughout the process. As a result, the authors were able to gather deep and nuanced insights regarding the student's hopes and fears, particularly the importance of routine and refuge spaces. They were also able to ascertain which, from a variety of creative methods, were most accessible for pre-verbal or situationally mute children.

Whilst Lewis et al.'s (2023) study was valuable in ascertaining students' feelings about school transition, they did not posit any practical solutions to improve transitions for the students involved. In contrast, Hummerstone and Parsons (2023) engaged six autistic students aged 12-13 in a co-designed process to develop visual and creative methods of sharing their sensory preferences with teachers. They used creative methods to co-produce an interactive tool that facilitated the meaningful sharing of autistic perspectives and experiences, thereby directly addressing some of the communication barriers that the

young people encountered. The young people were included at various stages during the design project, but overall control of the outputs remained with the researcher.

The project led to the development of a 'motivation mixer' (a paper-based mixing desk tool) that enabled autistic students to communicate their experiences and sensory preferences non-verbally with staff. Although the students were happy to engage in the activities, they were not optimistic that clearer communication would translate into meaningful change in perceptions and behaviour of staff members. This concern was upheld by the staff members themselves – while some welcomed the tool, others expressed that they had insufficient 'time, resources and support to implement any changes to practice' (p.77). Others felt that it would take too long to read the information and information could get muddled between students. This study therefore demonstrates that while participatory approaches may be helpful in eliciting authentic responses from neurodivergent students, outcomes are of limited value if they do not translate into tangible positive change. The authors acknowledge that the co-design of clearer methods of communication was just a starting point and that further studies would require working more closely with staff to ensure that both sides of the Double Empathy Problem were addressed.

Involving young people more fully throughout the research process, through employing a methodology such as participatory action research, is one way to ensure that outcomes are relevant and useful to the lives of those involved. Lam et al. (2020) used Photovoice as part of a participatory action research project with 14 autistic young adults to explore their personal well-being during their transition into adulthood (19-25). The authors note that much of the literature about neurodivergent wellbeing adopts a neurotypical understanding of 'well-being'. By engaging in a participatory action research approach, the authors hoped to better understanding autistic well-being, but also to use the findings to promote real-world social change.

Participants spent 6 weeks documenting their personal experiences of well-being through taking photographs on mobile phones, and met weekly in person to discuss the images and how they related to their personal experiences. Following data collection, a thematic analysis was conducted which produced three main themes of unique expression of self,

valuing close relationships and connection with- and caring for the community. By taking time to gather autistic views and personal experiences, a highly nuanced story emerged that challenged dominant medicalized views of autistic well-being. Lam et al. (2020, p.1256) argue that 'well-being is arguably more compatible with the search for personally meaningful experiences', and what is personally meaningful will differ between individuals.

This study reveals the importance of questioning assumptions that concepts such as 'well-being' have universal meaning, demonstrating that they may have very different implications for neurodivergent people than they do to neurotypicals. Participatory action research actively engages co-researchers in cycles of action, observation and reflection, so that co-researchers are able to explore topics relevant to their personal experience, gaining new insights and understanding through the process. This is more in-depth than a process of consultation, as the aim is to actively engage co-researchers in creating new knowledge by making the implicit explicit. In Lam et al.'s (2020) study, compared to Lewis et al. (2023) and Hummerstone and Parsons (2023), creative methods still provided an accessible means to engage neurodivergent students, but a participatory methodology ensured that participants developed new insights into what constituted their own 'well-being' through the opportunity to explore, share and reflect on their experiences with others across multiple cycles. Participatory methodologies therefore have the potential to go further by inviting co-participants to construct, inform and adapt the research process itself, questioning and challenging assumptions to potentially produce more meaningful insights than might be possible through consultation alone.

2.4c. Making spaces that work for neurodivergent students

Educational environments are multi-faceted, constituted partially by the design of physical spaces that learners inhabit, but also by student-teacher relationships and interactions, peer relationships and the overall ethos of the institution itself. Some studies have directly addressed the more social and interpersonal aspects of educational environments, such as Eardley (2023) who worked with a group of secondary school students in England who identify as ADHD. The project aimed to co-create a school film club using film-making techniques to reflect upon students' lived experiences of both education and ADHD. Eardley

co-produced the “no plan plan” with the students, an emergent methodology that introduced fluidity into the session structure and enabled the neurodivergent young people to determine the content, pace and direction of their work. Consequently, the film club created a more accommodating and inclusive spaces for neurodivergent students and teachers alike.

Eardley explains how the “no plan plan” gave students greater freedom to experiment compared to other learning environments in the school, empowering them to transcend adult agendas, building greater levels of trust within the group and reducing students’ anxiety to enable creative agency and expression to flourish. Eardley’s work demonstrates that relinquishing a degree of control is a necessary aspect of successful co-produced research, as well as flexibility and a preparedness to respond to whatever emerges during the process. When student co-researchers are trusted and empowered to take the lead, outcomes go further than achieving inclusivity, potentially leading to meaningful change in policy and practice.

While Eardley’s work focuses primarily on session structure, others such as Swingewood (2023) focus on relational dynamics and the tools neurodivergent young people need to inhabit the role of co-researcher successfully. Swingewood (2023) developed an ‘un-toolkit’ for her student co-researchers to help them feel empowered and to give them researcher status. They note how participating in research can place young people in a vulnerable position, as they lack the methodological knowledge and expertise of an adult researcher, adding to the vulnerability that they may already experience within school. The ‘un-toolkit’ contained objects such as a ‘student researcher’ badge, a ‘we are recording’ sign, a phone tripod, a microphone and notebook, as well as laminated copies of the participant information sheet. The reason for these objects was primarily ethical – to give the students agency and a choice about how they might be perceived by other students during the research process, and a choice about how visible they wanted to be.

The young people were acutely aware of the power structures and hierarchies within the school, and were also notably (self-)conscious about being recorded during the data collection process. Offering a choice of physical artefacts promoted autonomy in the

student researchers; some chose to wear the badge proudly as a symbol of status and difference, others chose not to wear the badge, but to walk with the camera, creating a focal point to initiate conversations. This highlights the importance of physical artifacts in creating choice and enabling young people to inhabit their role autonomously within the research setting. The authors embraced the unexpected behaviours, disruptions and relational dynamics that emerged during the research process as yielding richer and more authentic insights into the neurodivergent lived experience of the students. Both studies embrace freedom and autonomy as a way to empower student co-researchers, but while Eardley (2023) focused on openness and flexibility, Swingewood (2023) chose artifacts as social scaffolds to support student autonomy. It may be that a combination of both creating the freedom to choose and offering practical support are necessary to encourage growth and development in student co-researchers.

2.4d. Changing perspectives, policy and practice in education with neurodivergent students

Although developing spaces that work for neurodivergent students can be impactful at a local level, systemic change requires changing perspectives, policy and practices at an institutional level. Some studies have attempted to do this within their specific subject area, such as Bakan (2014) who explains how a paradigm shift from pathology to neurodiversity has tangible epistemological consequences for creative practices such as music therapy. Therapy is traditionally situated within the pathology paradigm, aimed at someone with a 'deficit' who might benefit from engaging in therapeutic practice. From within the neurodiversity paradigm, however, difference is not considered a deficit, and this therefore challenges the motivation to change the person in any way.

Bakan acknowledges the beneficial effects of music therapy for autistic people in a wide variety of contexts, but explains how a focus on alleviating 'deficits' prevents autistic voices from being heard. Bakan instead suggests an 'ethnomusicological' approach, where the aim is not to intervene upon the musical offerings of participants, but to listen intensely and observe. The epistemological foundations of this practice consider the participant to be an expert in their own lived experience, and so the ethnomusicologist attempts to understand

and relate to that experience through the music produced. This is a process-focused endeavour, meeting the person where they are, and attempting to reach a shared understanding rather than aiming for change.

Bakan's work takes place within a neurodivergent music collective known as ARTISM - 'Autism: Responding Together in Sound and Movement'. The collective contains neurodivergent young people and their parents as well as professional musicians. Together, they engage in collaborative improvisational work, eventually moving towards more formalised compositions. The instruments are adapted to modulate the sound for those with sensory sensitivities, to ensure that the young people are minimally restricted in their creative expression. Through this work, Bakan demonstrates that many pathologized autistic behaviours, such as stimming, possess an intrinsic musicality with a deliberate structure and rhythm. This highlights the musical validity of the young peoples' improvisations within the group and demonstrates how music making can be a meaningful form of autistic self-expression and self-advocacy as well as non-verbal communication. By shifting the focus away from therapy towards creative expression, the young people are given agency and autonomy within the creative space.

While Bakan's (2014) work is specific to his discipline, others have sought to use music to change educational practices more broadly, to make them more accessible, and to encourage teachers to question the assumptions they have about their neurodivergent students. Shannon (2020) uses neuroqueer theory in a similar way to Bakan's ethnomusicological approach, to subvert the traditional use of music and the arts as a way of making neurodivergent children better fit neurotypical expectations. Shannon explains how music-based interventions are frequently used to 'tune up' students that are seen as being out of key or 'noisy', so that they can be included within a mainstream setting.

Instead, Shannon (2020) advocates for attending directly to the 'noise' to unsettle neurotypical preconceptions and to celebrate neurodivergent forms of expression. Shannon's work involved collaboration with 30 children from an early years setting, to produce electroacoustic soundscapes, drawing on neuroqueer theory to intentionally subvert normative acoustic standards and to embrace more chaotic forms of acoustic

experimentation and creative production. In doing so, the project shifts the locus of change from the child to the classroom itself, challenging educational spaces to encompass the diverse musical responses arising from neurodivergent sensory experience as both meaningful and valuable. Engaging with a post-qualitative methodology of musical co-creation allowed young people's creative expressions of their sensory experiences to redefine what counts as creative learning.

The research participants in Shannon's (2020) study were a mix of neurotypical and neurodivergent children, and part of the research involved creating a musical composition that was later performed and recorded. However, within the performance, a number of students engaged in vocal improvisations. One neurodivergent student performed a six-note vocalisation followed by a neurotypical student, who gave a much longer vocal improvisation. The author notes how the teachers intervened to try to stop the neurodivergent student from making what they considered to be involuntary 'noise', but did not try to stop the neurotypical student, whose contribution was considered to be voluntary and therefore musical.

Shannon uses this incident to make an important point about inclusion; in the case of the first student, it is the 'listening ear' that renders their musical contribution involuntary, and attempts to exclude it from the composition. Instead, Shannon suggests that we must 'tune-in' to the neuroqueer contributions of students to appreciate their relevance and value. On revisiting this young person's improvisation, Shannon discovers that the improvisation 'tuned perfectly within the 12 semi-tone harmony system' and 'is consistent with an octatonic diminished scale' (Shannon, 2020, p.500). Although initially appearing involuntary, the improvisation did have musical merit and appeared to be a deliberate response to the performance. Here, the adult staff acted as gatekeepers, determining what was meaningful and accepted as an act of creativity. Being open to alternative value systems therefore becomes doubly important for researchers of neurodiversity in education where the intention is to create meaningful and socially just change.

Shannon explains that neuroqueer theory challenges us to question not only the exclusionary practices of disablement, but also what we choose to *include* through our

understanding of ability. Expressions of ability might look different between neurodivergent and neurotypical students, but should not automatically be devalued or discounted as involuntary or meaningless. By ‘tuning-in’ to neurodivergent forms of expression it becomes possible to discover meaning not readily apparent to a neurotypical ear, and this can be extended to all forms of creative and pedagogic practice.

Both Bakan (2014) and Shannon (2020) use creative practice to shift practitioner mindsets and expectations within educational settings. However, instituting neuro-affirmative practices within education can be more effective when neurodivergent students themselves are able to take the lead on designing and implementing that change. Coldrick and Ly (2025) discuss a project co-created with an autistic postgraduate student to redesign the university’s postgraduate admissions interview process using Universal Design for Learning (UDL) principles. This initiative was student-led from the beginning, with university staff collaborating in a supportive role. This allowed autistic lived experience to be centred as a vital source of knowledge, enabling structural barriers within the admissions process to be identified, and normative assumptions about communication and performance that frequently disadvantage neurodivergent students to be addressed. Staff provided ‘strategic scaffolding,’ adapting timelines, responsibilities and expectations to enable the student to take the lead. Through this process, institutional norms were effectively challenged, and the admissions process reimaged to ensure increased accessibility for neurodivergent students.

However, it should be noted that, although an autistic student effectively adopted the role of primary researcher in this case, with support from faculty staff, they were also an adult studying at a graduate level at the time. This raises an important issue that the extent to which neurodivergent students and young people are able to meaningfully ‘take the lead’ within co-produced research depends upon their age and level of ability. It is important, therefore, to find a balance between empowering young people to play an active role in participatory and co-produced research, whilst also ensuring that they have adequate support and that expectations placed on them are appropriate to their skills and ability level. It is also important to be aware of how practitioners’ expectations of young people can shape research outcomes and interpretation.

2.4e. Creative practice and co-production as an effective ‘playful learning’ tool for neurodivergent students

Within the studies discussed so far, creative practice and participatory methods have been used to different degrees to engage neurodivergent young people in transforming their educational environments. However, some studies such as Ward (2024), emphasize how creative practice and participatory methodologies such as participatory action research (PAR) complement and enhance one another when used in conjunction. Ward (2024) discusses how both creative practice and PAR share a commitment to dismantling hierarchical power structures, focusing on processes over outcomes and engaging in action to create change. Creative practice can also enhance traditional PAR approaches by introducing multimodal tools for exploration and expression that reduce reliance on the need for verbal communication, making them more accessible to neurodivergent young people in particular.

By drawing out these comparisons, Ward (2024) reconceptualizes co-production with neurodivergent young people as “playful learning.” Across two different participatory action research projects in one school, Ward demonstrates how multimodal creative practices such as digital storytelling and participatory games design offer flexible opportunities for neurodivergent students to act autonomously, collaborate effectively with adults and peers and to shape their own educational experiences. She proposes that learning and communication are both embodied and multimodal. Using creative practice as a tool for learning therefore reduces reliance on purely verbal/linguistic skills, and affords students an opportunity to both learn and communicate in a variety of ways that best meet their individual needs. Ward also recognises students’ right to choose how and when to participate as a valid exercise of individual agency and choice that must be respected.

In the first study, a group of key stage 4 autistic students worked alongside industry professionals to design and code a computer game “birds with guns.” Students documented their experience of co-produced games design through digital stories and evaluative interviews. The findings were that working creatively alongside industry professionals created a ‘third space’ where adult-student relationships became more equal and power

dynamics were undermined. Students focused on the most engaging and entertaining elements as the focus of their designs, and co-creating alongside peers enabled students to recognise one another's strengths and capabilities.

In the second study, 16 students co-created digital stories and virtual tours over 7 weeks to support students through educational transitions. Students planned, filmed and edited video content for the virtual tours. Students also designed transition materials which captured the sensory details of certain areas, peer dynamics and information about social areas and the traits of specific school staff. These details may typically be overlooked by adults designing similar packages for transition. In addition, having control over film making and content gave students a degree of agency and control which helped to turn their own transition anxieties into a positive and empowering experience.

Ward's work highlights the playful and collaborative nature of creative learning, as well as the importance of multimodal experimentation and expression to improve accessibility for neurodivergent students. It also demonstrates how empowering students to create change in their own lives can be much more effective than presenting them with information or possible solutions, and entering into co-productive research partnerships with adult researchers and creative professionals shifts the focus from neurodivergent students as passive recipients of special education to active participants in designing their own learning spaces.

2.4f. Summary

This section has explored how others have used creative practice and participatory methods to modify, improve or develop learning environments for neurodivergent young people. Some studies used participatory methods to design more accessible physical spaces for young people (McAllister and Sloan, 2017; Kelly et al., 2025). Others were more concerned with creating conditions under which neurodivergent young people could express themselves clearly and authentically, where creative methods were used to facilitate both engagement and effective self-expression (Lewis et al., 2023; Hummerstone and Parsons, 2023). Eardley (2023) and Swingewood (2023) took a more holistic view of educational

spaces, focusing on relational dynamics, and how these might be improved for neurodivergent students through choice, flexibility and agency. Bakan (2014), Shannon (2020) and Coldrick and Ly (2025) were more ambitious in attempting to create a perceptual shift in how neurodivergence is understood in education, looking to create significant change by developing teaching practices or using participatory methods to directly change policy and practice. Finally, Ward (2024) synthesizes various elements of each of these approaches by attending to physical space, building relationships, communication, cultural shifts in expectations and understanding and using creative practice to diversify modes of expression and participation, making them more accessible to neurodivergent young people.

By appreciating the complex and multi-faceted nature of educational environments, Ward's (2024) work aligns most closely to the aims of this thesis. Both appreciate that creating more effective educational environments means changing the physical and social environment, democratizing relationships of power between students and teachers/facilitators, as well as modifying expectations and understanding of neurodiversity. This thesis shares a belief with Ward (2024) that creative practice and participatory action research are complementary with their mutual focus on process over product, a commitment to change through meaningful action and the necessity of power sharing as a means to effective collaboration. However, this thesis will reach further than Ward (2024) by drawing a comparison between creative practice and Crip Theory to understand how creative practice can be used to effectively 'crip' educational spaces making them more accessible to all learners.

Furthermore, while Ward's (2024) study, and the majority of other discussed here focus exclusively on autistic students, this thesis adopts a more expansive understanding of neurodiversity to include student co-researchers who identify as autistic, ADHD, dyspraxic, dyslexic, OCD, as well as those with diagnoses of mental health conditions such as anxiety and depression. The benefit of working with a diverse cohort of co-researchers is that findings will be more robust, demonstrating improved accessibility and efficacy in educational environments for a much broader range of students.

2.5 Conclusion

This literature review has considered different definitions of creativity, to conclude that 'mini-c' and 'little-c' creativity (Beghetto and Kaufman, 2007) are most readily applicable to the kinds of creative learning that take place in schools. These forms of creativity are characterized by openness and exploration within a supportive atmosphere. The implications for this study are that low-pressure classroom environments that allow time for exploration are highly conducive to creative learning.

The most relevant and useful model of creativity for this study was found to be Amabile's (1996) revised Componential Theory of Creativity, presenting a clear account of necessary creative components, as well as highlighting the relationship between motivation and creative learning, and the importance of the social (learning) environment upon individual's motivation to engage. Amabile's model avoids some of the normative value judgements present in other theories, which describe creative personality 'types' that potentially exclude and devalue neurodivergent ways of thinking and being.

Intrinsic motivation was found to be an important component of creative learning, leading to increased levels of engagement and retention of information (Amabile, 1983; Beghetto and Kaufman, 2007). The implication for this study was that creating autonomy-supportive environments (Deci and Ryan, 1985) for student co-researchers will yield the most positive results. The suggestion that neurodivergent young people are less self-determined than their peers was rejected in favour of Walker's (2011) assertion that neurodivergent young people simply require a different type of support to act autonomously. This implies that student co-researchers may require some additional support with skills such as decision-making, problem-solving and goal-setting.

This literature review has explored what creative practice is and how it might produce more inclusive and supportive educational environments for a diverse range of learners. However, the work of authors such as Hall and Thompson (2017) and Bragg and Manchester (2011) suggest that successful creative educational environments consist of multiple elements

working together, such as signature pedagogies, 'third spaces' of learning, conviviality and capaciousness.

Some existing studies focus on using co-production and creative practice to create more effective educational environments for neurodivergent young people, but only a small number attempt this in a holistic way, attending to multiple aspects of the educational environment and for a broad range of neurodivergent students. In order to understand how multiple elements combine to make learning more accessible to a diverse student body, a group of 9 neurodivergent students were recruited as student co-researchers to engage in a process of critical participatory action research (CPAR). This is explained in greater depth in the methodology chapter of this thesis.

3. Methodology

The primary aim of this thesis is to understand how creative practice can inform the co-creation of effective learning environments for neurodivergent students, and to understand how these environments promote personal and social development, and improve communication and collaboration. The literature review provided the context for why creative practice can make education more accessible by offering multiple routes to engagement, and creating circumstances where thinking differently is seen as a strength. The methodology section will explore why critical participatory action research (CPAR), informed by critical disability studies and crip theory, is the most effective approach to explore these conditions. The study is also designed to benefit the research participants, empowering them to create meaningful change within their own educational context. In addition, the practical and cyclical nature of action research facilitates opportunities for professional learning and development informed by the research process, commensurate with the nature of a Professional Doctorate in Education (EdD).

3.1 Introduction

Since the Elementary and Secondary Education Act (“No Child Left Behind”) of 2001, ‘evidence-based’ practice now dominates educational policy in both Britain and America (Biesta, 2007). This approach is underpinned by positivistic assumptions about ‘what works’ in education and favours quantitative research methodologies that demonstrate the effectiveness of interventions in terms of, for example, statistically significant improvements in standardised test scores. Positivism assumes ‘there is a reality out there to be studied, captured and understood’ (Denzin and Lincoln, 2008, p.14), and being able to quantify outcomes is viewed as a scientific and empirically viable method of doing so.

However, as Biesta (2007) identifies, adopting a positivistic, ‘evidence-based’ approach to education fails to address the question of what education is actually *for*, focusing only on what outputs can be measured. Ball (2003) discusses this culture of ‘performativity’ within the British neoliberal education system, where the *experience* of education is accorded only

an instrumental value in terms of the most efficient means to achieve measurable outcomes (Ball, 2003). Furthermore, 'efficient' practices are deemed those most effective in producing the highest grades for the greatest number of students (Biesta, 2007). But this fails to address *every* student's right to a high-quality education, and adopting an outcomes-based approach to education means that those who require the most from the system are also the most neglected. It reveals that a system based on academic performance as the basis for determining educational quality is highly normative and excludes many (Ball, 2003; Biesta, 2007). The primary focus of this thesis is not improving academic achievement, therefore, but attempts to explore accessible methods of teaching and learning that do not exclude those who think and learn differently.

Qualitative research methodologies recognize the complexity of the social world and allow for multiple different interpretations and effective responses to a particular event or situation. They often seek to understand individual experience or practice *within a particular context*, rather than attempting to make universal claims about a certain phenomenon (Denzin and Lincoln, 2005). Qualitative researchers also appreciate the socially constructed nature of reality, and that the researcher forms a fundamental part of that reality. This means that qualitative research is value laden, but rather than seeing this as a threat to the validity of the research, qualitative researchers engage reflexively with their own values and positionality (Schön, 1983), directly addressing any influence this bears upon the research outcomes.

As a creative professional, I originally worked as Head of Young Everyman and Playhouse (YEP) Technical with the Everyman and Playhouse Theatres in Liverpool. My role was to teach technical theatre skills to 18-24 year olds not currently in employment or education, with the intention that learning practical and creative skills would increase their employability. Many of these young people self-identified as neurodivergent, but were often undiagnosed. Over the course of eight years, it became apparent that engaging with this program yielded much greater benefits to the young people's personal development, over and above improving their employability. These benefits included significant increases in self-confidence and self-esteem, the ability to communicate and collaborate effectively, and most markedly, developing positive attitudes towards learning and positive self-belief.

Through a process of 'problem setting' with respect to my own professional practice in this role (Schön, 1983, p.40), it became clear to me that the rigid, neoliberal competitive individualist practices of mainstream schooling had contributed to these young people's lack of self-esteem and self-worth. By contrast, engaging with technical theatre skills in an open and creative environment provided the means by which these young people could heal and rediscover their own passion for learning. It also became apparent that, as a facilitator, it was only necessary to create favourable conditions, and the young people became the agents of positive change within their own lives. Empowering young people to take responsibility for their own learning was particularly important as it contributed to increased self-esteem, and the knowledge that their learning could be translated to new situations.

As a consequence of these experiences, my personal belief with respect to this research is that mainstream educational environments, based in neoliberal values of competitive individualism, disempower and disadvantage neurodivergent students by positioning them as failures with respect to neurotypical performance expectations. In educational environments where difference is seen as a strength, and students have the freedom to advocate for their own needs, students create conditions conducive to their own learning. Neurodivergent students are best placed to decide what educational environments work most effectively for them, and should therefore play an active role in determining the outcomes of this study. However, this knowledge may be implicit, arising through previous positive and negative educational experiences. The research process must therefore render this knowledge explicit through active investigation and experimentation.

Critical Participatory Action Research (CPAR) is a qualitative research methodology that aligns well with this belief, as it aims to produce knowledge from purposeful action. In this case, engaging with creative arts practice to produce more effective educational environments. This 'action' usually takes place within a 'community of research interest' (Walter, 2009, p.1), where those participating in the co-construction of knowledge have a vested interest in improving or changing practice. The 'community of practice' within this research project is comprised of myself as lead researcher, a neurodivergent creative co-

facilitator (Mr S) and a class of nine (15-16 year old) neurodivergent student co-researchers of mixed gender attending the Alder Centre for Education (ACE) in Liverpool.

These students have previously been removed from mainstream education and assigned a place at ACE for mental health reasons. This decision was made via the Mental Health Support for Children and Young People in Liverpool team, based on the understanding that mainstream education was detrimental to their mental health. ACE has smaller class sizes than a mainstream high school (around 9-10 students per class) and operates within a much smaller footprint (around 6 classrooms in total). The students' previous negative experiences of schooling would indicate a vested interest in improving education for both themselves and other neurodivergent young people.

3.2 Critical Participatory Action Research

PAR is a qualitative research methodology, rather than a method, because it has its own value system - valuing participation as a way to create positive change through democratic means and attempting to disseminate power through a community of practice (Walter, 2009). It also has its own ontology - understanding the multiple subjectivities that are expressed through action, and viewing all of these subjectivities as equally valid. Finally, these ontological differences result in unique forms of knowing, that produce an epistemological standpoint challenging the hegemony of 'objectivity'.

For this reason, PAR is a methodology frequently employed with indigenous groups, as well as in educational settings, because it encourages change from within, with and for those most affected by the research itself (Walter, 2009). Stone and Priestley (1996) explain how research with disabled people and other marginalised communities must not exacerbate relationships of social oppression already experienced. From a political standpoint, therefore, there is also an obligation to ensure that research with these groups is both emancipatory and empowering, with full accountability to the individuals concerned. When these obligations are considered, PAR has the potential to resist dominant narratives and power structures that might seek to impose change upon disempowered minorities. Finally, this approach creates space for multiple voices and is able to accommodate difference

without aiming for consensus (McNiff, 2013). For this reason, PAR is a methodology well suited to working with neurodivergent young people who have been disenfranchised within education, empowering them to create positive change in their own lives.

Critical Participatory Action Research (CPAR) has the additional aim of changing practices ‘to make them more rational and reasonable, more productive and sustainable, and more just and inclusive’ (Kemmis, McTaggart and Nixon, 2014, p.3). This research project therefore adopts a ‘critical’ stance towards participatory action research, considering mainstream educational environments to disproportionately devalue and exclude neurodivergent ways of thinking to the detriment of neurodivergent students. The research will aim to co-create learning environments that are more ‘just and inclusive’ for neurodivergent students, and consequently, any action taken is from a critical perspective.

The primary feature of CPAR is that it is cyclical, addressing problems through cycles of planning, action, observation and reflection, with each cycle informing the next (Walter, 2009). Deciding what actions to take, and what indicates success is a collaborative and self-evaluative process. There are, however, various challenges with this methodological approach. The first is that by disrupting the clear distinction between researcher and participant, the researcher challenges claims to objectivity and a privileged position in relation to what is observed (Kemmis, McTaggart and Nixon, 2014). To improve the validity of this research, therefore, the researcher must be aware of their own positionality and remain critically reflexive toward their own practice, as their actions also form part of the dataset.

However, in co-produced research, it is not just *actions* that are relevant. McNiff (2013) discusses how knowledge production is always driven by human interest, and this influences the kind of knowledge that is produced. In participatory action research, relational and dialogical interests are particularly relevant. ‘Relational’ interests describe the relational aspect of all co-produced research - the research team includes facilitators and student co-researchers, who are not individuals acting in isolation, but in relation to one another. Each person is influenced by their own knowledge, power and status *in relation* to other members of the group, and individual actions have consequences for the group as a whole

(McNiff, 2013). Similarly, because educational environments are shared environments, 'dialogic' interests (change or transformation occurring through dialogue) are also of central concern – it is not just action, but all forms of communication that are enabled within the research space.

For this reason, Lewis et al. (2023) discuss the importance of developing positive relationships when adopting a participatory approach with neurodivergent young people. Developing trust and respect between the researcher and the student co-researchers means that co-researchers are more likely to engage effectively within the research space. In addition, when working with neurodivergent students in particular, Lewis et al. (2013) explain that flexibility and responsiveness to individual needs are particularly important for the researcher/facilitator to ensure that the young people are able to behave in a way that feels most comfortable for them. This requires the researcher to develop a relationship with the participants *before* the research commences to understand their individual needs and behavioural cues, as well as engaging in continued 'reflection-in-action' (Schön, 1987) throughout the process, to respond effectively to changing needs and preferences.

Despite the researcher's attempt to keep possibilities for action and communicative space open during the research phase, these possibilities are naturally limited by time, resources, and what is permitted within the constraints of the research setting. It is therefore incumbent upon the researcher to create the most favourable conditions for effective CPAR by fostering positive relationships within the group. This means creating an atmosphere of openness and respect between all participants, and being attentive to individual needs and preferences, to maximize opportunities for engagement. Simultaneously, the researcher must be cognizant of the practical constraints of the situation and the effect this will have upon the knowledge produced.

3.3. The role of the creative facilitator in CPAR

This research took place as part of the students' enrichment programme, intended to broaden the young people's horizons with opportunities, knowledge and skills relevant to their educational journey and future lives. However, as this constituted part of the regular timetable, the researcher was still required to uphold the responsibilities of a class teacher in lieu of the ACE staff member who was their usual teacher for this lesson. This included managing student behaviour, ensuring students physical and emotional safety, taking responsibility for participation and learning, as well as providing lesson content, rationale and outcomes for the sessions. These responsibilities are potentially in conflict with the other responsibilities of a researcher/creative facilitator, such as creative horizontal power structures and maintaining a space of open communication and expression.

As a result, the role of the researcher/creative facilitator was multifaceted, and required negotiating the available space for change within the pre-existing educational environment. The creative practitioner – as – researcher is also concerned with how creative practice can be used as an effective tool for learning, but with a focus on learning processes rather than outcomes, where student engagement, motivation and acquisition of skills are a primary concern. Unlike the creative professional, who may prioritize artistic outputs, or the class teacher, who may prioritize measurable learning outcomes, the researcher/ practitioner has the privilege of focusing almost exclusively upon the learning process itself.

For the purposes of this research, then, the researcher's role is threefold; firstly, they are responsible for creating a space where students can act as co-researchers. This is a space of mutual trust and respect, which is open and responsive to multiple possibilities for action. Secondly, the researcher/practitioner inducts the students into creative practices by modelling creative and professional behaviours which the students are invited to adopt. This aims to become a democratized space of experimentation and play. Finally, the researcher – as – teacher must take responsibility for the physical, social and emotional well-being of the students, managing behaviour within the classroom, and ensuring student safety throughout. While the first two roles complement one another, characterized by a democratization of power and valuing difference, the role of teacher introduces a conflict.

Acting as gatekeeper necessitates an imbalance of power that potentially stifles freedom of expression and therefore must be carefully negotiated. This can be managed in part by adopting a democratic attitude towards the production and acquisition of knowledge, where no one voice takes precedence over any other, verbally justifying the use of power (such as when managing behaviour), using reasoned argument rather than coercion, and making it clear that any actions are taken with students' best interests in mind.

In addition to fulfilling the roles described, the researcher-as-practitioner also attempts to develop their own practice alongside and in response to the student co-researchers. This requires an attitude of 'speculative pragmatism', or the ability to respond to novel situations with an attitude of openness and willingness to explore (Atkinson, 2022). To open up the potential for learning *from* student co-researchers as well as *alongside* them, a space must be created for the unexpected to happen, for the student co-researchers to take the lead, and for the researcher-as-practitioner to inhabit a space of not-knowing, to enable new possibilities for action to emerge. This is an essential element in transforming educational practices by making them fundamentally student-centred, and inverting traditional power structures to reveal that students possess the knowledge of how they learn most effectively. Working alongside a neurodivergent creative practitioner is also useful, as it democratizes the role of the adult facilitator, and provides a consistent reminder that effective practice can take many forms.

3.4 The role of student co-researcher

Empowering participants to act as student co-researchers within this project creates opportunities to instigate meaningful change. As neurodivergent young people who have experienced poor mental health, it is essential that neurodivergent experience plays a central role in the research process. Crip theory provides one such framing, where the experience of D/deaf, disabled and neurodivergent people is understood to provide foundational knowledge, presenting opportunities for meaningful social and cultural change. Crip theory goes beyond mere inclusion, constituting an affirmation of difference that undermines exclusionary ableist practices (Mitchell, Snyder and Ware, 2014).

Dronkert (2023) argues for ‘cripping’ methodologies involving D/deaf, disabled and neurodivergent people, by moving away from ‘inclusion’ narratives of ‘participant-as-co-researcher’ to discover more meaningful collaborations that are appropriate to the knowledge and skills of both researcher and participant. They give the example of a collaborative research partnership with an individual with ‘mild intellectual disability’ (MID), to demonstrate how access to academic worlds require a very specific set of cognitive abilities that many people do not possess. It is unfair, therefore, to assume that student co-researchers can and will participate in the same way as adult co-researchers, because they are younger, less experienced and will be invested differently in the process. In order to ‘crip’ a research methodology effectively, therefore, it is necessary to consider the specific knowledge and skills of the co-researchers and how these can be assimilated meaningfully and effectively into the research process.

In the context of this study, this meant giving co-researchers choice and agency throughout the research process with respect to their learning, as well as opportunities to object, reject and make changes to the process. At the beginning of the study, it was explained to the student co-researchers that their experiences and opinions were valued, and that they had freedom to participate in any way that felt most comfortable. They were also able to determine session content, change or adapt tasks to meet their individual learning needs, and decide the format that individual sessions would take, in terms of the physical arrangement of the space and the level of interactivity required. Although they did not take part in the final analysis of the data, they did participate in the ongoing cycles of acting, observing, reflecting and planning that constituted the 4 cycles of CPAR. This happened informally during the sessions themselves, but enabled the young people to direct the flow of the research, establishing and maintaining successful processes and practices, and abandoning those that impeded effective learning and engagement throughout.

Within CPAR, it is important to acknowledge structural power differences, and to allocate roles and responsibilities appropriately. Power can be used to support or oppress. Similarly, having autonomy and control over the research process can be either enabling or overwhelming for student co-researchers depending upon their capacity to inhabit the role. As Dronkert (2023) explains, having a more horizontal partnership does not necessarily

mean that each party adopts the same roles and responsibilities, but requires careful consideration to ensure power is distributed equitably. Stone and Priestley (1996) go further, to suggest that traditional research dynamics should be inverted such that the process is made to serve the needs and interests of the marginalised group, rather than using participants to support the aims of the research. For the purposes of this study, the learning experience of the student co-researchers was foregrounded throughout, and although they were always given opportunities to act autonomously, they were not *expected* to do so. The dynamic that emerged was that student co-researchers were supported more fully at the start of the research process, in terms of decision making and allocation of tasks, but as they became more confident, they also became increasingly autonomous and displayed independent decision-making, in some cases, facilitating aspects of the session themselves.

Within the 4 cycles of CPAR, it became apparent from the beginning that group discussions were not an effective means of eliciting multiple viewpoints; the young people were extremely reluctant to express their ideas in front of their peers. Seale, Nind and Parsons (2014) suggest adopting the 'worldview' of co-researchers within PAR to understand what kinds of action they will feel comfortable with, and what boundaries engender safety and support. A more effective method of gathering opinions emerged naturally during the sessions in the form of one-to-one conversations with student-coresearchers as they engaged in creative tasks, which were observed and often included multiple parties. The content of these conversations was used to reflect upon each cycle of CPAR and informed the planning of subsequent cycles.

Finally, crippling educational research means rejecting individualism as a self-evident good and drawing attention to the benefits of 'interdependency as a political technology' (Dronkert, 2023, p.733). Dronkert (2023) explains that 'cripping' is a collaborative and collective endeavour. It requires student co-researchers to work together and make the most of one another's strengths, as well as encouraging them to ask for help and learn from each another. It also means undermining competition, and focusing on process over product, where each student reflects upon their own personal development, rather than comparing themselves to their peers. In this regard, the research methodology itself

influences the research findings, as creating a sense of community and collectivism naturally affects the educational environment under investigation. It is necessary to remain cognisant of this during the process of data analysis.

3.5 Student Voice

Student voice is important when creating change in educational contexts, and particularly within a Critical Participatory Action Research study. However, if young people are unaccustomed to sharing their thoughts and experiences with adults, this sometimes requires encouragement and practice. Einarsdottir (2007) notes that young people are often unfamiliar with adults' genuine interest in their views and opinions. To elicit authentic student responses in this study, therefore, it was necessary to explain clearly that student contributions were valued within this context. Furthermore, Scott-Barret, Cebula and Florian (2019) suggest that to build mutual trust and respect between adults and student co-researchers, it is necessary for the researcher to invest time and energy with the students outside of the research context to ensure that the young people feel they can share their genuine thoughts and feelings without judgement.

Considering different communication styles is particularly important when attempting to communicate effectively across neurotypes. Milton's (2012) Double Empathy Problem demonstrates that effective communication strategies are a mutual concern. However, in situations where there is a power differential, such as between a neurotypical adult researcher and a neurodivergent student, a much greater responsibility lies with the adult to find the most effective means of communication within each interaction. Wood (2019) explains that neurotypical adults working with neurodivergent students must not only be prepared for communication differences, but that young peoples' ability to communicate may be drastically impacted by emotional overload and stress. This requires different approaches at different times, including the capacity to actively listen and to respond to situations as they develop.

Strong and effective communication is essential at every stage of this action research project. Wood (2019) notes that adults can sometimes be hindered in their communication

with neurodivergent young people by their adherence to previously learnt strategies and devices, such as 'now and next' boards, which sometimes inhibit their ability to respond in the present moment to what the young person is trying to communicate, either verbally or non-verbally. Lewis (2010) reminds us that silence is never empty, and is often full of non-verbal communication, and Davis et al. (2000) highlight the fact that young people also have the right not to respond, and this should always be respected, and engagement should never be forced.

In this study, the researcher spent time with the student co-researchers before the research stage, experimenting with different forms of creative engagement such as making light boxes, battery powered cars and handheld maze games. This provided an opportunity to understand the students' interests and preferences, and get a sense of what content might support their engagement. Consequently, a mutual trust developed which alleviated some of the students' anxiety about engaging in the research process. It also enabled the researcher to understand individual communication preferences, and what some of the students required in terms of attention and motivation to engage.

In addition to being heard, student co-researchers must also have the opportunity to create positive change. In the context of this project, that meant giving student co-researchers choice around activities, modes of engagement, and acting upon feedback or criticism within the sessions themselves. Hall and Thompson (2017) suggest that *empowerment* is more important than student voice, and under the right circumstances, creative practice can develop student's autonomy, capability and sense of agency by allowing them to navigate the creative process autonomously, solving problems and experiencing successful outcomes of their own making. Similarly with critical participatory action research, it is not just the participants' ability to communicate their ideas and preferences that matters, as much as the opportunity to take meaningful action and make choices that have tangible consequences for their own lives.

3.6 Implications for CPAR when working with neurodivergent young people

Critical Participatory Action Research considers participant co-researchers to be experts in their own lived experience. They are ‘insiders’ (Kemmis and McTaggart, 2014) with specialist knowledge of particular situations, and can bring that knowledge to bear on the situation under investigation. With respect to working with neurodivergent groups, Fletcher Watson et al. (2018) make a number of important points, including that research should be relevant and respectful to the neurodivergent community, participants should shape the research agenda where possible to avoid tokenism, and researchers should be wary of any assumptions they might have about participants’ capabilities. Assumptions should not be made that others can speak for those who have challenges with communication or for those who are described as ‘non-verbal’, and it should be recognised that supportive infrastructure is required for meaningful participation to take place.

The researcher’s task is to find ways to meaningfully engage with participants who find verbal communication challenging. Barrett, Cebula and Florian (2019) explain how social and communication barriers make it more difficult for researchers to seek the views and opinions of autistic young people in particular, and this can mean that their views become disproportionately underrepresented in research. They suggest taking time to build a strong rapport and working to adopt alternative forms of communication, such as written, visual or via a trusted adult who knows the individual well and can communicate their preferences or interpret their body language accurately. Fletcher-Watson et al. (2018) suggest that working with parents may also be appropriate in some circumstances to gain a fuller understanding of the student’s preferred methods of communication. Within this study, all of these approaches were adopted as appropriate to the circumstance.

Critical Participatory Action Research involves the added necessity of reflecting critically on individual situations and asking how they can be improved for those involved. It therefore rejects impartiality and relies upon participants having a vested interest in transforming their own circumstances. It also requires the ability to introspect and critically reflect upon the relationship between the individual and their environment. This will differ for each of the students. However, as long as all concerned are working towards the same goal, which

in this case means creating more effective educational environments, these differences in investment and motivation provide a holistic view of the situation and combine to deliver positive outcomes for all students.

CPAR is concerned with how situations arise, the way they are reproduced through processes and practices, and how they can be transformed into new ways of working (Kemmis and McTaggart, 2014). The aim is to create accessible learning environments that do not exclude neurodivergent young people. It is therefore the knowledge and experience of students, teacher/facilitators, and the policies and practices of the institution that become relevant. Kemmis and McTaggart (2014, p.26) describe CPAR as 'practice changing practice... a self-reflective process by which they remake their practice... a process of self-transformation'. For this to occur, certain preconditions are necessary.

Firstly, there must be an environment of openness, where all present feel able to express themselves honestly and without fear of being judged. Although the researcher cannot control every aspect of this, as the young people will still make judgements towards one another, and students may not be fully open towards teachers/facilitators due to the imbalance of power, the researcher *does* have the ability to set an example and work towards this aim. Secondly, there must be a willingness to explore, experiment and try new things, to initiate changes in practice and discover new potentials. Thirdly, there must be explicit opportunities for self-reflection for both students and facilitators throughout the process for learning to be identified, shared and consolidated by the group.

This can also be described as *communicative action* (Habermas, 1987). Communicative action is dialogic, and is concerned with reaching a consensus and achieving mutual understanding between members of the group. This is not always easily achieved, but where there is a difference of opinion, compromises can be reached, and differences can be respected. This requires the initiation of a *communicative space*, characterized by openness, honesty and mutual respect, where people feel their contributions will be taken seriously by others. It also requires the ability to listen actively to what others are saying and understand their perspective. As Kemmis and McTaggart (2014) explain, however, communicative spaces are frequently distorted by power and status. In the case of educational settings,

even where attempts are made to disrupt them, power imbalances will always remain. In this respect, it is important that the adult/researcher gains the trust and respect of the student co-researchers so that they can enter into a more egalitarian communicative space without feeling coerced. Within this study, this was achieved by the adult facilitators sharing relevant aspects of their own past experience in the first instance, including past experiences of vulnerability and failure. Within the sessions, values were communicated and embodied, and all of the student co-researcher's ideas, feelings and concerns were validated, taken seriously and responded to.

3.7 The structure of educational practice and creating space for change

Educational practice is constituted by three kinds of relation: cultural-discursive, material-economic and social-cultural (Kemmis and McTaggart, 2014). Cultural discursive relations determine the kinds of things that can be *said* or discussed as part of a practice, and who is able to say them. In educational settings, this refers to the traditional practice of teachers asking questions and students responding with appropriate answers. Sometimes, students are invited to engage in open discussion on a particular subject, but usually the teacher's role is to guide the discussion towards a particular conclusion.

Material-economic relations determine what can be *done* in a particular setting. In schools, this is generally constrained by the layout of the room and the equipment available. If the room is arranged in rows of desks and chairs, there is an expectation that each pupil takes a chair, sits behind a desk and makes notes. If there is a white board or a screen at the front of the classroom, this is where the teacher stands to show slides or write while students watch and listen. In this way, the physical environment determines the behaviour expected in a particular situation. For neurodivergent students, this can sometimes place physical restrictions on their movement and create sensory environments which have a disproportionately negative effect upon their ability to engage with session content. As discussed, creative practice naturally disrupts some of these rigid expectations and lends itself to physical spaces which are more malleable, adaptive and fluid with respect to individual needs, creating a situation where students have greater opportunity for self-regulation, comfort and personal choice.

Finally, social-political relations determine how individuals relate to one another in a setting, including the roles they assume. The teacher is traditionally the leader, holding the power, determining session content and guiding students towards a particular goal. The students listen and respond accordingly. Altogether, these relations form a 'practice architecture' and work together to constitute an 'ecology of practice' (Kemmis and McTaggart, 2014). To change practice, therefore, all three elements must be considered, as well as the interaction between them. Similarly, it cannot solely be the adult/researcher that determines these changes, but all participants must decide how they will interact with and understand the educational space.

3.8 Ethical issues

Ethical approval was obtained from Liverpool Hope University Research Ethics sub-committee for 'research with vulnerable human groups' before the commencement of this study.

3.8a. Working with vulnerable groups: Student Co-researchers

The student co-researchers consisted of a class of 9 year 11 students. The students did not formally disclose details of their neurodivergent status, but through the course of the research process, it became apparent that over 50% of the group had a diagnosis of autism, over 50% of the group had a diagnosis of ADHD, and various additional diagnoses including dyspraxia, dyslexia, obsessive compulsive disorder (OCD), Tourette's, and mental health related issues including anxiety and depression.

Two of the students (K and L) were situationally mute. We were informed by staff that K never spoke in school, except for a few words to specific staff members, but was very talkative around her own family. She found school very stressful, particularly art sessions due to previous negative experiences, and would generally choose to sit at the back and work on her maths homework. In conversation with ACE staff, it was decided before the research commenced that K would benefit from an informal meeting about the research with her parents present, so that she could discuss any concerns and ask questions about

the process. The meeting was very productive, and it was agreed K's mum would receive a text message before each session to let her know what would be happening during the session to help K prepare.

L was also situationally mute but less anxious than K. L preferred just to watch during sessions, but a member of ACE staff explained that he would go home and talk to his mum in great detail about everything that had happened during the day. L's preferred method of participation, therefore, was observation, but for L this was an effective method of learning where anxiety could be kept to a minimum.

Due to their neurodivergence and previous experience of mental ill health or distress, this cohort would traditionally be considered a 'vulnerable' group. However, as discussed within the Introduction, this study adopts Fineman's (2008) definition of vulnerability as a universal constitutive human condition, and therefore, the degree to which this latent vulnerability is experienced arises as a consequence of the individual's present relationship with their physical and social environment. Goodley (2014) describes how the neoliberal-abelism that underpins mainstream educational environments disadvantages and excludes neurodivergent students in particular. This is an example of what Garland-Thompson (2011) refers to as 'misfitting', describing the experience of a particular body-mind that does not 'fit' within the parameters or expectations of a particular situation. Under this definition, the students within this study would have been considered 'vulnerable' while they were still participating in mainstream education.

However, when this research took place, they were no longer in an educational environment causing distress and were described as being 'in recovery', receiving support from both ACE staff and the mental health support team at Alder Hey Children's Hospital. Furthermore, there were notably open lines of communication between senior staff at ACE and the parents/guardians of the young people with respect to their welfare, and consent was required from both students, legal guardians and senior school staff as gatekeepers. Their right to withdraw from the research was also stated clearly both verbally and in writing, and students were reminded verbally of these rights at relevant points throughout

the research process. If any students experienced discomfort or distress during sessions, they were invited to take a break or offered some time out with ACE support staff.

Although being neurodivergent could imply vulnerability in the sense of being part of a minority group in a predominantly neurotypical environment, this was not the case at ACE, where almost all of the students were neurodivergent. However, the majority of the staff did identify as neurotypical. To strike a more favourable balance, the researcher recruited a neurodivergent creative practitioner, Mr S, who had a similar level of experience, to co-facilitate the CPAR sessions. This practitioner was male and identified as mixed cultural heritage. Within the research context, therefore, neurodivergent students were in the majority, and neurodiversity was also represented by half of the research team. Furthermore, the purpose of the research ensured that neurodivergence was viewed as a strength (rather than a deficit) in this context, providing valuable insights through lived experience. These factors supported a strengths-based approach that clearly considered neurodivergent experience to be both meaningful and valid.

It was not possible to remove all 'structural inequalities' (BERA, 2018, p.6) between the researcher and the student co-researchers, such as differences in knowledge and academic experience, experience of creative practice, age differences and the authority that accompanied the role of teacher/facilitator. However, significant efforts were made to include students in decision making processes, such as the structure and content of sessions, what the overall creative outcome would be and how students chose to participate. Including Mr S was intended to help the students' feel represented by adults within the research team, minimizing some of the negative effects of these inequalities. Furthermore, the primary intention of the research was to empower students to make decisions that would positively impact their own education and experience of learning; providing students with opportunities to critically engage with their learning environment was intended to increase feelings of agency, confidence and self-worth for all those involved. Both facilitators attempted to use their privileged position positively to support students and ensure they felt safe while engaging with the process.

In terms of vulnerability arising from the research activity itself, student co-researchers were required to acquire and practice creative skills leading to a final performance, as well as being asked to reflect upon their learning experience throughout to determine what might be improved or changed. All activities took part during timetabled lessons, and any discussions/reflections happened naturalistically. These discussions would not have differed noticeably from those of a typical classroom. This helped to minimise feelings of pressure or exposure during the process. Similarly, filming and recording was generally avoided as methods of data collection, as this led to self-consciousness and student withdrawal. For this reason, written fieldnotes were taken by myself as researcher, constituting the primary source of data recording. Students were not placed in any additional physical harm than they would have encountered in other practical sessions in school, and all sessions were continuously risk-assessed and staffed according to established school guidance protocols.

In terms of preventing physical harm to student co-researchers, all portable electrical appliances and equipment had a valid Portable Appliance Test (PAT) certificate, both researchers were fully trained in all practical creative activities, and every session was risk assessed to minimise harm. Each session was facilitated by a minimum of 2 trained adults, with a maximum class size of nine students and all students were given a health and safety briefing and agreed a code of conduct before each session. This code of conduct referred to treating one another with respect, physically and verbally, during sessions, being aware of each other's needs, taking mutual responsibility for one another's safety in the space, and providing help and assistance where necessary.

Any young person considered to be unsafe to participate due to tiredness, mental health, intoxication or for emotional reasons was withdrawn from the session by a member of ACE staff. Any task thought to present an increased risk of physical harm was monitored by facilitators on a one-to-one basis. If student behaviour was thought to increase the physical risk to other students during the session, the activity was suspended until the situation could be resolved. Regular comfort breaks were scheduled throughout the session including opportunities to move around and go outside for brief periods as necessary.

In order to minimize emotional harm or distress from participating the research activity, the researcher remained vigilant to students' emotional responses during each activity, and throughout the session. Students were also encouraged to share their feelings about each activity and make suggestions for possible changes. Two students were initially identified as having high levels of social anxiety, choosing not to take part in most aspects of classroom activity. Where possible, the researcher consulted directly with their parents and teachers to find ways to minimise anxiety and find potential solutions to increase engagement with practical sessions. Both students engaged in written communication during sessions and were given the opportunity to try a variety of alternative activities. They were also provided with one-to-one tuition where possible, and lines of communication with relevant adults and caregivers remained open to ensure comfort and safety was maintained throughout.

3.8b. Informed Consent

In accordance with BERA guidelines (BERA, 2018) student co-researchers were required to give written consent to participate in the study, in addition to consent from relevant guardians and gatekeepers. Students were fully informed both verbally and in writing of what was required of them and their right to withdraw at any time without providing a reason. However, as Scott-Barrett, Cebula and Florian (2019) note, when working with neurodivergent young people, it is necessary to emphasise to the young person that this is *their* decision to make and communicate, particularly if they are accustomed to having decisions made on their behalf. Furthermore, it should not be assumed that neurodivergent young people will either give or withdraw their consent verbally, as verbal communication may present a substantial barrier. Instead, a variety of methods of granting and withdrawing consent were made available to them. Within this project, the young people gave their written consent, and were informed that they could withdraw at any time in a variety of ways, and efforts were made to 'reassure such potential participants that non-participation is acceptable' (BERA, 2018, p.13). The decision to withdraw could be communicated through caregivers, teachers, in writing, over email or text, and this information would be passed to the researcher immediately. No students decided to withdraw at any stage.

Furthermore, Scott-Barrett, Cebula and Florian (2019) note that children and young people are much less likely to read consent forms or information sheets and are also less likely to ask questions if they do not fully understand. For this reason, the young people in this study were presented with easy read versions of the research information sheet and were given the opportunity to take them home to consider before giving their consent (see appendices 1 and 2). The information sheet and consent form were also read out in front of the class, and student co-researchers were given the opportunity to ask questions or raise concerns.

3.8c. Risks to the Researcher/Facilitator

In the transition between teacher/student to the more horizontal relationship of researcher/co-researcher, there is an increased chance that behavioural management within the classroom becomes an issue. Similarly, in creating an open and exploratory space to learn, there is an increased chance that students will disclose personal information and safeguarding issues might arise. To protect against this, it was made clear at the beginning of the research process that mutual respect and kindness were two important values; it was everyone's responsibility to make others feel safe and accepted, and helping one another wherever possible was important. Both facilitators were also trained in safeguarding and child protection, and informed about the safeguarding procedures within the setting. If any behaviours were considered to increase physical or emotional risk to students or facilitators, they were immediately addressed. No issues that required intervention occurred during the research phase.

3.8d. Potential benefits arising from student participation in the research process

The potential benefit to students from participating in this research project included gaining access to a rich creative curriculum, and practical skills which could open up opportunities for future learning. In addition, students had the opportunity to gain a deeper understanding of their own learning preferences, reflecting upon and attempting to articulate these preferences within an educational setting. The students were given the opportunity to share their opinions in a space where they would be listened to and taken seriously. They had the chance to work practically and creatively as part of a team, sharing

ideas, and being mutually supportive of one another. They created a final performance which was shared with their peers and students from a neighbouring school, providing an opportunity to take pride and ownership over what they had created.

Furthermore, including young people as co-researchers disrupted traditional hierarchies of both power and knowledge production (Liddiard et al., 2019). Engaging meaningfully with the research process was found to increase the young people's experience of autonomy, agency and the legitimacy of their individual perspectives and lived experience. Where co-researchers had previously experienced marginalisation and exclusion, this led to increased self-confidence, self-esteem and a willingness to participate. These effects were evident, as student co-researchers gradually inhabited the research process, eventually taking the lead, and helping to shape knowledge production about the benefits of creative learning environments for neurodivergent young people.

3.8e. Research Co-construction, Data Collection and Analysis

As Scott-Barrett, Cebula and Florian (2019) explain, it is not only important to consider how students are invited to co-construct the research process, but also how they might respond to the way they are represented in research outputs. In the case of research with neurodivergent students, it is also important to consider the potential impact of any findings upon the wider neurodivergent community.

As stated in the BERA guidelines 'the confidential and anonymous treatment of participants' data is considered the norm for the conduct of research' (BERA, 2018, p.21). Consequently, all names were replaced with letters to avoid identification of any individual student. None of the original transcripts will be shared outside of the doctoral supervisory team at Liverpool Hope University. A collective decision between staff, facilitators and students was made that no individual would waive their right to anonymity to protect the anonymity of the group as a whole. All original data was stored safely on an encrypted storage device and password protected personal computer throughout the research process, and will be destroyed on successful completion of the doctoral programme.

3.9. Methods

The main aim of this research is to make educational environments more effective for neurodivergent students. To do this, it is necessary to attend to pre-existing sites of exclusion, and work to eliminate these, reflecting on how exclusion is produced in these contexts. This research must therefore understand the previous educational experiences of student co-researchers, as well as their actions within the research setting, attending to both individual communications and expressions as well as external observations of behaviour. To achieve this, a mixed methods approach was utilised and multiple forms of data were collected. During the 4 cycles of CPAR which took place, classroom observations/field notes were made by myself as researcher and Mr S, as well as individual and group reflections on creative practice. After each session, Mr S and I discussed our individual observations and recorded them collaboratively to improve the validity of the findings.

Following the 4 cycles of CPAR, individual students took part in 10-minute semi-structured interviews to discuss their previous experiences of education and reflecting upon their participation in the research process. Observations and reflections on individual students' well-being, motivation and preferences for communication and engagement by teachers and parents were also noted where relevant.

Reconnaissance Stage – establishing co-researchers and opening a communicative space.

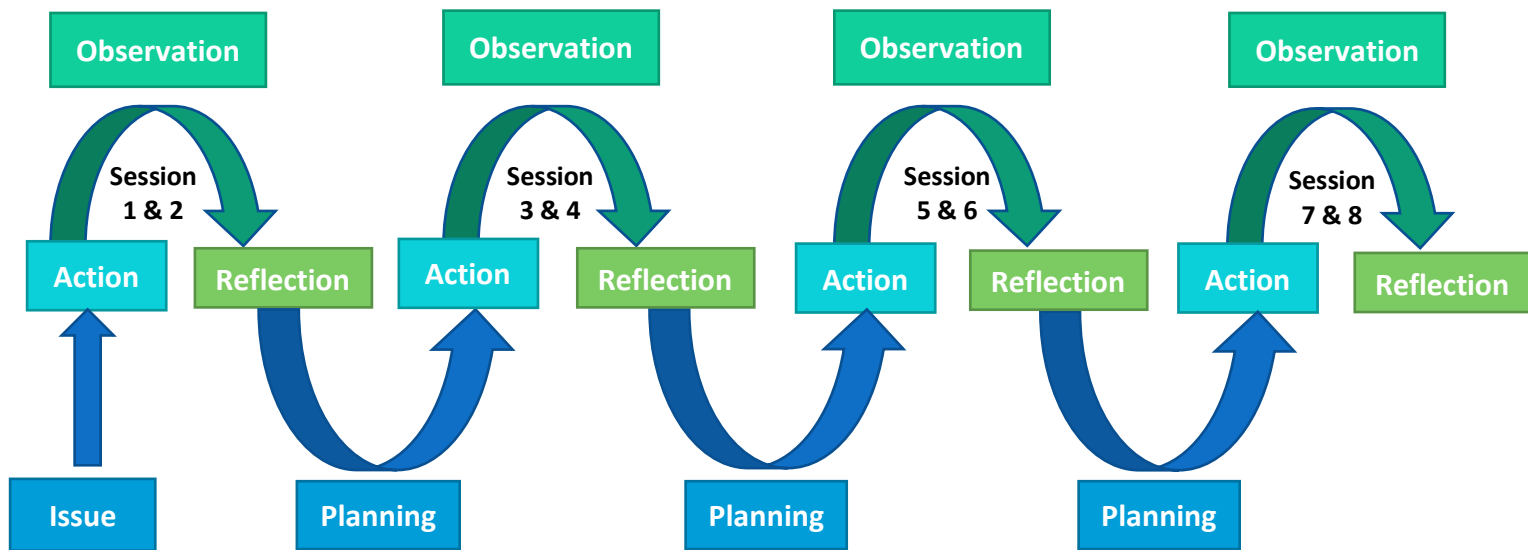
CPAR usually begins with a reconnaissance stage, where relevant issues and the potential for change in a particular context can be explored. The researcher worked with the cohort for one term before the CPAR research phase began. This enabled different kinds of activity to be trialled, provided an opportunity to understand group dynamics, and developed trust between the researcher and the students.

For this particular cohort, minimizing anxiety was a primary concern. This meant building relationships with the students and speaking with parents and teachers for relevant background information before the research began. To enable students to inhabit the role

of co-researcher, the reconnaissance stage established values of mutual respect, listening and turn-taking within the group. The researcher also attempted to understand the students' own views on their education, where it became apparent that confidence, self-esteem and self-advocacy were all potential issues requiring ongoing support to ensure effective engagement with the process.

Sessions took place as part of their regular timetable during Enrichment lessons. At the start of term, students were involved in a discussion about the research process, including their roles and contribution as co-researchers. The proposed research question was explored with the group, as well as session content and potential creative outputs, which formed the first stage of planning. The creative output determined the necessary skills required to achieve the stated aim. This included basic sound engineering, lighting, making and stage craft, as well as green-screen and film editing. These skills were introduced across 4 cycles of CPAR (planning, acting, observing, reflecting), where students were first introduced to a skill then given the opportunity to develop that skill before moving on to the next cycle where another skill was introduced.

3.9a. Fig. 4. Cycles of CPAR



CYCLE 1 – Establishing co-production

Planning for the first cycle involved determining what the group wanted to make, deciding what skills and knowledge were required to achieve this, and how everyone would work together as a team, including an informal code of conduct, where student co-researchers agreed to treat one another with kindness, patience and respect, and where all thoughts and opinions relating to the project would be listened to and taken seriously. All sessions began with a check-in, an introduction to the task, and a health and safety briefing, as well as a reminder that student co-researchers were free to take a break or withdraw from the research at any point. Creative skills were demonstrated, materials were distributed and tasks allocated to the group.

The processes of acting and reflecting took place concurrently. Written notes and observations were made throughout and immediately following the session. Filming was avoided as a means of data collection, but ACE staff took photographs with the young peoples' permission. During sessions 1 and 2, student co-researchers were introduced to skills in lighting – designing and making their own electric lamp in session 1 and learning about theatrical lighting techniques in session 2.

Reflections took place immediately following each session, where the researcher and creative facilitator discussed their observations and made detailed notes about how the student co-researchers engaged with the tasks and one another, how the structure of the session worked and for whom, what skills and knowledge were acquired, and what changes should be made in planning for cycle 2.

CYCLE 2 – Developing autonomy as co-researchers

Sessions 3 and 4 introduced students to working with live sound and basic sound engineering techniques. Student co-researchers were able to develop greater autonomy throughout this cycle, choosing who to work with and which aspects of each task to engage in. They were also given the opportunity to design a piece of music or a soundscape at the end of session 4, offering the possibility of greater creative freedom. Observations took place throughout, and subsequent reflection informed planned actions for cycle 3. Reflections concerned levels of engagement and motivation, differences between cycle 1 and 2, and broader reflections on communication and group dynamics.

CYCLE 3 – Taking Responsibility as co-researchers

Sessions 5 and 6 introduced student co-researchers to creative making techniques including Modroc, puppet making, clay modelling and design. At this point, student co-researchers took responsibility for completion of individual aspects of the project themselves, engaging in autonomous creative decision-making with relation to the final outcome. Students were also able to diversify the development of skills and knowledge according to interest and ability. Observations and reflections were made on the particular successes and challenges of cycle 3 to inform planned actions for cycle 4, including reflections on confidence and autonomy with respect to creative practice, and how this could be developed further.

CYCLE 4 – Taking the lead as co-researchers

Sessions 7 and 8 introduced student co-researchers to basic film making and green screening techniques, with further options for creative making during session 8. Student co-researchers were able to take the lead during film making as each were allocated specific roles according to their individual preferences. This meant that they had creative freedom and control within their individual role, for example, the camera operator could decide when to start filming and when to cut, asking the actors to reset for particular scenes. All tasks were directed towards the end performance, with the option to continue making in session 8 to allow student co-researchers to follow their particular areas of interest.

3.9b. Final Sessions and Creative Outputs

There were 5 more sessions following the 4 cycles of CPAR. Session 9 took place outside the classroom environment at Liverpool Scenic Workshop to complete building the sleigh for the final performance. Sessions 10-12 provided an opportunity for students to specialize in skills that they had gained during the 4 cycles of PAR, and session 13 was the final performance, where all student co-researchers created a Christmas experience for the neighbouring school.

The session notes from each cycle of CPAR were coded and analysed using Interpretative Phenomenological Analysis (IPA) (see below) to identify personal and group themes about how the educational space was used, managed, adapted or changed to meet the needs of individual students and the group as a whole during each phase. Students' individual learning journeys were also monitored, to help identify differences *between* students. Creative outputs from the research phase included one 5-minute film that all students collaborated in creating, two short audio recordings, and numerous photographs from individual sessions, including making the sleigh and the winter wonderland, as well as some photographs from the final performance. Although these creative artifacts did not serve directly as data, they provided evidence to support conclusions drawn from other data sets. Photographs and screenshots are included for illustration purposes throughout the Analysis chapter.

3.9c. Reflective Interviews

Following the 4 cycles of CPAR, students took part in one-to-one semi-structured interviews to reflect upon their previous experiences of education as well the research process itself. These interviews were recorded using an audio recording device and safely stored on an encrypted storage device and password protected personal computer.

This cohort of students had previously been removed from mainstream education for mental health reasons, and ACE aims to provide a safe and recuperative place for these students to continue their education. This means that ACE is not a typical educational environment, and these interviews were intended to provide an understanding of ACE's contribution to the students' education and well-being, to establish the pre-existing conditions under which this study took place.

Five students participated in a verbal one-to-one interview. Two of the students chose to respond in writing, and two of the students were unable to participate due to illness and personal preference. The interviews were conducted in a quiet, private room, and were recorded using an audio recording device. These recordings were then transcribed verbatim, and read through to aid familiarization with the written data. The transcript was then revisited, with initial exploratory notations made to identify important comments and relevant descriptions.

The first phase of data coding began with identifying experiential statements for each participant. An experiential statement is an attempt to summarize a participant's experience by identifying the most salient aspects of what is being said. Once all relevant experiential statements had been identified, they were re-examined to produce Personal Experiential Themes (PETs) (Smith, Flowers and Larkin, 2022, p.94). A PET arises from a cluster of experiential themes all conveying similar aspects of an experience. Once PETs had been identified for all of the participants, it was possible to look across the datasets of *all* participants to identify any similarities or points of departure. This comparison was then used to develop Group Experiential Themes (GETs). The aim of Group Experiential Themes was not to establish a group or 'average' response, but to highlight 'shared and unique

features of the experience across contributing participants' (Smith, Flowers and Larkin, 2022, p.100). The table of group experiential themes within the Analysis chapter clearly demonstrates converging and diverging aspects of participants' experiences, and how they communicated those shared experiences.

The same process of Interpretative Phenomenological Analysis (IPA) (Smith, Flowers and Larkin, 2022) was also used to analyse the reflections arising from each cycle of CPAR, in order to determine the actions for the subsequent cycle. This method of analysis will now be discussed in detail to demonstrate its suitability for this study, which aims to derive collective actions in response to multiple perspectives and experiences.

3.10. Interpretative Phenomenological Analysis

Interpretative Phenomenological Analysis (IPA) is concerned with how people make sense of their own experiences (Smith, Flowers and Larkin, 2022). The two major theoretical axes of IPA are interpretation and phenomenology; 'interpretation' refers to the researcher's attempt to understand the experiences of participants, and the meaning those experiences have for them. In this sense, IPA involves a double-hermeneutic (Smith, Flowers and Larkin, 2022, p.29), or double layer of interpretation, whereby the researcher attempts to understand the *participant's* understanding of their own experiences. The second axis is phenomenology, which is the philosophical study of lived experience. An exploration of the nature of lived experience and how we interpret that experience is particularly relevant to a study involving neurodivergent student co-researchers and a neurotypical researcher working alongside a neurodivergent co-facilitator. The implication is that all members of the group will have significantly different experiences of the same events, and extra care must be taken to differentiate between the students co-researchers' understanding of their experience and the subsequent interpretation of that experience during data analysis.

3.10a. The Philosophical basis of Phenomenology

Husserl's Transcendental Phenomenology introduces the structure of consciousness as fundamentally *intentional*, that is, consciousness is always consciousness *of* something

(Moustakas, 1994). For Husserl, the main aim of phenomenology is to separate out our preconceptions, what we 'know' to be true, to get to the things themselves by focusing on the pure contents. He implies that it is not possible to completely eliminate oneself from the act of perception to reach an objective understanding of a particular phenomenon, but it may be possible to gradually separate out, through a process of reflexivity, one's own interpretation from the thing itself, to reach a greater understanding of both.

Heidegger calls into question the possibility of being able to separate out the objects of our perception in this way. He explains that from birth, we are 'thrown' into a world of relationships with people, places and things, and can only understand ourselves in terms of these relationships (Heidegger, 1927). Furthermore, the nature of our being is described by Heidegger as one of 'care' – our relationship with people, places and things is determined by the meaning they have for us (Heidegger, 1927). For Heidegger, then, our being-in-the-world always originates from a specific viewpoint, determined by our meaningful relationships with other people and things. Any attempt to separate ourselves from those relationships, to adopt a dispassionate and 'objective' viewpoint will be unsuccessful, because they are constitutive of our very being. This aligns closely with critical disability studies perspectives that highlight the interdependent nature of our lived reality (Liddiard et al., 2022) and crip theory's foregrounding of the unique and valuable nature of disabled people's lived experience (McRuer, 2006).

The implication for interpretative phenomenology is that we should be aware of our own perspectives, our feelings and relationships towards other things, to better judge how that influences our understanding of them. Furthermore, when we observe other people's meaning-making activities and how *they* relate to the world, we are likely to use our own experience as a starting point to achieve an understanding of the other. This will only lead to an accurate understanding when the other person's experience concurs with our own. Where it differs, meanings and responses will also differ, and may be more difficult to interpret.

To understand the behaviour of others more effectively, therefore, it is first necessary to appreciate the *embodied* nature of being. Merleau-Ponty (2004) describes how our

relationship with the world can only occur through our bodily senses, and our perceptual experience gives the impression that we are viewing the world *as it actually is*. However, through our interactions with others, particularly across different neurotypes, it becomes apparent that the senses do not provide a singular experience of objective reality. Instead, there are a multitude of different perspectives. This does not mean that other people's experiences are inherently unknowable, but that we must rely upon more than inference to understand them.

This could involve building relationships, asking questions and observing behaviour in different contexts to understand how *that* person experiences reality differently to us. In IPA, what follows is an act of interpretation regarding the meaning of another person's language or behaviour. The success of this interpretation depends on the researcher's own self-awareness and their understanding of the person being observed. Within this project, this was achieved by building relationships with the student co-researchers across a number of weeks before the research process began, understanding their preferred methods of communication and ways of working, as well as meeting with parents and staff in instances where direct communication was more challenging.

3.10b. Hermeneutics and the Art of Interpretation

Philosophers of phenomenology such as Merleau-Ponty (2004) and Gadamer (1990) have demonstrated that the nature of being is always in relation to other people and things, and is fundamentally embodied. Everything we think and know is ultimately derived from our sense experience, and this is different for each person. We still have the capacity to understand others, but this is contingent – we can never know *exactly* what it is like to be another person. This is especially relevant when undertaking research alongside neurodivergent people, who frequently experience being misunderstood or have others making assumptions about their lives.

Hermeneutics, then, is the theory of interpretation – how we can come to 'know' or understand the experiences of others (Smith, Flowers and Larkin, 2022). IPA recognises that our situatedness means that we will always have preconceptions, thoughts and assumptions

from our prior experiences that influence how we understand and interpret events. Heidegger refers to these as 'fore-conceptions' (Heidegger, 1927), presenting a potential barrier to our interpretation.

However, Gadamer (1990) suggests that the relationship between interpretation (of a text) and our fore-conceptions is much more complex and cyclical. Gadamer explains that although we may never be able to approach textual data in a completely neutral way, the *act* of interpretation may help us to become aware of what our fore-conceptions are. He explains 'the important thing is to be aware of one's own bias, so that the text can present itself in all its otherness and thus assert its own truth against one's own fore-meanings' (Gadamer, 1990, p.269). We inevitably enter the process of interpretation with our own assumptions about what the data will reveal. However, for Gadamer (1990), the key is to analyse in the spirit of openness, to be as self-aware as possible, and to be willing to have one's preconceptions challenged, contradicted and changed through the course of the interpretation. The aim is to find opposition in the data as well as support for any particular hypothesis.

In order to engage successfully in this kind of analysis, it is necessary to return to the data multiple times, to refine understanding and to see how the parts relate to the whole. This is referred to as a 'hermeneutic circle' (Smith, Flowers and Larkin, 2022, p.22), where meanings are refined over successive readings, and connections between different parts of the data reveal themselves gradually, by shifting from detailed analysis of smaller sections, then referring back to the wider context to see how these interpretations fit. Within this study, this was achieved through multiple readings of the data, initially with rough descriptive notes and reflections made on a written transcript, and on subsequent readings, refining those descriptors to draw links between reoccurring themes within the data, gradually drawing out larger themes.

In IPA, interpretations also tend to be ideographic rather than nomothetic, meaning that they are concerned with understanding individual experiences in detail, rather than attempting to make more general claims about a whole population (Smith, Flowers and Larkin, 2022, p.24). However, it is possible to make generalisations within a smaller

population where everyone shares similar experiences. This is relevant here, as IPA can be used to identify individual students' experiences, as well as shared experiences relevant to this specific context. An ideographic approach, therefore, may still be consistent with making generalizations, but those generalizations must be developed with caution.

In conclusion, IPA is concerned with understanding human experience through *phenomenology* – understanding what a particular experience is like for someone, and *interpretation* – how that person makes sense of their own experiences, and how we, in turn, make sense of the experience in relation to ourselves. In this way, IPA involves a double hermeneutic, where the researcher interprets the experience which has already been interpreted by the participant/co-researcher. To achieve a meaningful analysis of the data, the researcher must therefore be open-minded, empathic and reflexive with respect to their own preconceptions of the phenomena being studied. They must be willing to be challenged and to discover things that are other than expected.

4. Analysis

CPAR Phase

4.1 Introduction

The primary focus of this research project was to use creative practice to co-create effective learning environments with neurodivergent young people. The reconnaissance phase informed a preliminary plan for the creative making sessions, such that student co-researchers would be able to increasingly take control over their learning environment as sessions progressed, and all of the skills acquired throughout would contribute towards a final performance piece.

This Analysis chapter will first address the 4 cycles of CPAR, and the key actions resulting from each cycle. In Part 1, a table of key observations is presented from each cycle, alongside a list of personal experiential themes relating to individual students. These themes were then collated into broader group reflections arising from each cycle of CPAR, that informed specific actions leading into the subsequent cycle. In Part 2, the data is analysed with reference to each of the three research questions, with supporting evidence taken directly from the session observations. In Part 3, an Interpretative Phenomenological Analysis of the semi-structured interviews which followed the 4 cycles of CPAR is presented, with key findings relating to student co-researchers previous experiences of education.

The sessions were designed as follows:

1. **Establishing Co-production** – Lighting
2. **Developing Autonomy** – Sound
3. **Taking Responsibility** – Creative Making
4. **Taking the Lead** – Film making

Cycles of CPAR

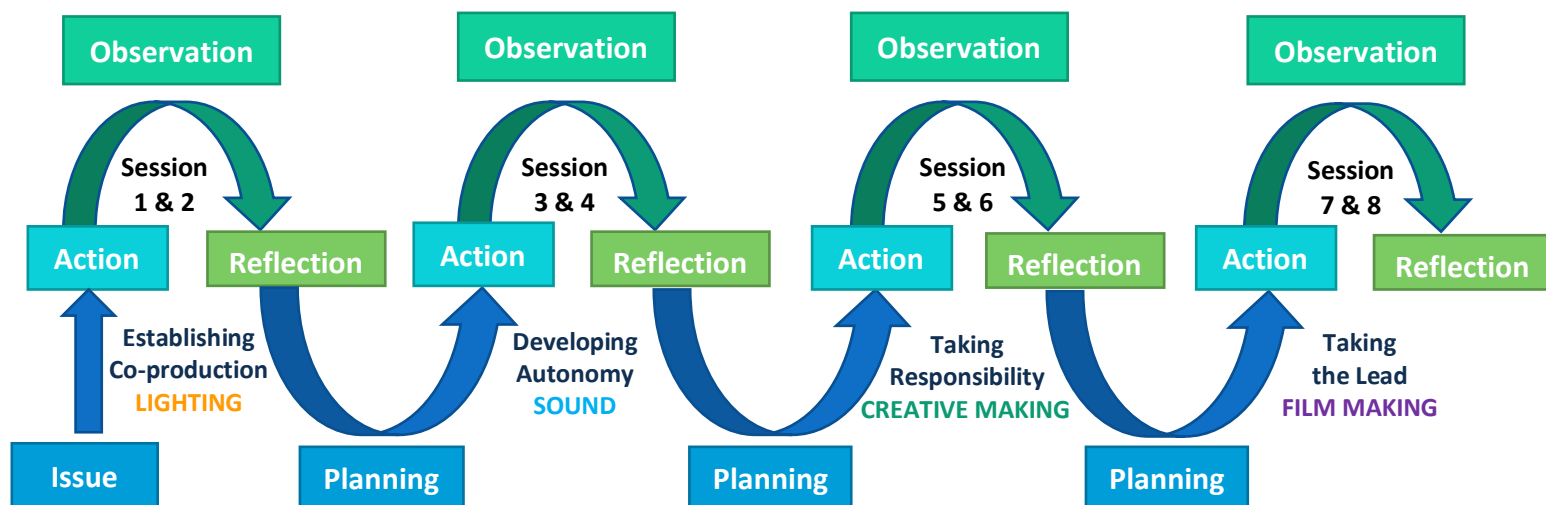


Fig. 5. Cycles of CPAR

Project Summary

Across these 8 sessions of CPAR, student co-researchers acquired the knowledge and skills to design and make a fully accessible interactive 'Christmas Experience' for students at a neighbouring school. This included filming a 'news report' about the theft of Santa's Sleigh and its subsequent return to the North Pole. Following the first 8 weeks of design and making, the student co-researchers attended Liverpool Scenic Workshops to construct a fully wheelchair accessible 'Santa's Sleigh Flight Simulator.' For the final performance, the audience were invited to ride Santa's sleigh whilst watching the news broadcast explaining how Santa's Sleigh had crashed, and they had to use their 'Christmas Spirit' to fly it back home. The student co-researchers and facilitators dressed as Santa's Elves for the performance and participated by rocking the sleigh and throwing snowballs at the audience whilst the sleigh was 'in flight'.

4.2 Part 1 - Data Collection and Method

4.2ai. Planning for CPAR Cycle 1 – Establishing Co-production

The aim of sessions 1 and 2 was to introduce students to the idea of co-producing their learning environment alongside facilitators. This meant making it explicit that student co-

researchers had choices regarding session content and task structure (material-economic relations). They also had choices about how to communicate and participate in sessions (cultural-discursive relations), and the power to challenge facilitators if something was not working for them (social-political relations) (Kemmis, McTaggart and Nixon, 2014). Student co-researchers were told that all contributions were valued and would be incorporated into the planning of future sessions.

The facilitators' role was to design and present session content and manage the physical space so as to increase student engagement and motivation in each subsequent cycle. Engagement and task motivation were used as indicators of the efficacy of the learning environment (Deci and Ryan, 2000), including the length of time spent on a task in focused concentration, and the degree of enthusiasm displayed in deriving potential solutions and offering individual contributions. The facilitators' role was also to ensure open communication was established and maintained between student co-researchers and facilitators, to support effective pedagogical relationships. Relationships between students were also observed, focusing on the way students related to one another throughout the process. This included partnering students who worked well together, and allocating tasks that would complement their individual strengths.

The facilitators therefore established the conditions for learning at the start of each cycle, and the student co-researchers responded to these conditions, communicating their needs and preferences throughout. This did not always take the form of verbal communication, and sometimes relied on close observation and interpretation by the facilitators to determine students' needs in the moment. This feedback was then acted upon by the facilitators in planning the next cycle of CPAR, as a demonstration of learning through action (Kemmis, McTaggart and Nixon, 2014). However, in addition to the larger cycles of action, observation and reflection that took place across every 2 sessions, actions, observations and reflections also occurred continuously throughout the process, as facilitators and co-researchers interacted, and practices emerged and developed naturally. When these actions were successful in increasing engagement and motivation to learn, they were taken forward as good practice informing planning for the subsequent cycle. Where they were

unsuccessful, and did not lead to an increase in student engagement and/or motivation, they were either adapted or abandoned as unsuccessful.

In cycle 1, the students had the opportunity to learn skills in lighting. In the first session, the classroom was set up in rows, and student co-researchers were given materials to design and make their own electric lamp. Students could choose what materials they used to design and decorate the lamp, and the process of wiring up was explained in a step-by-step way using practical demonstration. In the second session, student co-researchers learnt about theatrical lighting. All of the tables and chairs were removed, and student co-researchers erected booms, rigged and cabled theatre lights, and were shown how to focus the lanterns, using patterned metal stencils called 'gobos' and coloured gels for dramatic effect.

The differing content of each session allowed comparisons to be drawn about which elements worked most effectively for particular students. For example, session 1 provided the relative safety of allowing students to sit behind desks throughout, while session 2 required students to stand and move freely about the space for the entire session. Session 1 was more structured with minimal creative freedom in terms of choosing materials, and following the procedure for wiring the lamp. Session 2 provided more freedom in the roles that student co-researchers assumed, and the particular tasks that each of them chose to undertake. As a result, it was possible to determine how each student responded to structure and freedom, both practically and creatively. It also enabled the facilitators to witness the kinds of choices made with respect to learning, and allowed preferences for communication and participation to be established by the student co-researchers.



Images above – student designing, making and wiring an electric lamp using a metal flowerpot

4.2a.ii. Observations from Cycle 1

Written observations were made for each student co-researcher following sessions 1 and 2. These observations concerned their engagement, behaviour, needs and preferences with regards to learning throughout each session. Summaries of those individual observations are given below. These were reflected upon and used to determine actions for cycle 2:

Observations	Personal Experiential Themes
K observes sessions from a distance, because the classroom environment is overwhelming, noisy and stressful K should be free to choose how to participate, rather than having no choice but to sit outside because of sensory overwhelm	Need for sensory regulation Freedom of participation Genuine choice
H benefits from individual explanations and visual demonstrations. H needs clarity and is confident enough to ask questions when uncertain H works hard to find solutions to problems, is confident to try multiple possibilities and is not worried about making mistakes H likes to understand how things work rather than what artistic effects he can	Clear communication ensures understanding Has an enquiring mind Has the confidence to 'try' Demonstrates technical expertise

create. He is more comfortable with gaining technical skills because there is a clear method, rather than more 'open' creative tasks where there isn't one 'right' answer Despite confidence in his abilities, H needs clarity and reassurance where tasks are ambiguous or open-ended	'Open'/creative tasks are challenging Confidence requires clarity Ambiguity requires reassurance
R needs to get up and sometimes leave the room to self-regulate, choosing how and when to engage R likes to demonstrate his skills and find solutions for himself R doesn't like attention and will promptly exit situations where he feels unsure R will accept help but will not ask for it and needs adults to recognize when it is needed	Freedom of participation Freedom of movement Values autonomy Pride in demonstrating skills Social pressure is challenging Uncertainty is challenging Need to feel 'seen'
N has lots of ideas and will persevere, but becomes easily deflated when things go wrong N benefits from working 1:1 with a facilitator who can provide potential solutions, positive feedback and encouragement N is willing but not always able to engage due to lack of physical/emotional wellbeing. N benefits from flexible participation strategies	Lacks confidence to make mistakes Support builds confidence Recognition of success builds confidence Flexible participation Freedom to self-regulate
M enjoys creative freedom, choice and the chance to experiment, but finds too much freedom/choice difficult to manage and can become overwhelmed M works best in an open plan setting with space to move around M becomes deeply absorbed in enjoyable tasks and needs time and space to explore this fully to feel satisfied	Creative freedom within limits Freedom of movement Flexible use of time
A has strong creative instincts but doesn't always know how to get the desired results	Creative thinking skills over technical expertise

A is confident enough to try things out until he finds a satisfactory solution A finds it difficult to move on from an idea, even when it becomes apparent the idea is no longer practical A needs an outlet for his energy and some patience with respect to his behaviour A is engaged and enthusiastic when it's something he's interested in, but becomes quickly bored and distracted if it's not something he's in the mood for A needs to be given instructions/information a number of times in different ways to take it in	Has the confidence to 'try' Needs time to explore ideas fully Freedom of expression Need to be intrinsically motivated Clear and varied communication ensures understanding
J perseveres and responds well to change J's actions are always in response to what R is doing	Confidence to 'try' Socially motivated
O takes comfort and reassurance from positive relationships with peers O finds manual tasks very challenging due to her Dyspraxia O perseveres and is highly motivated by mastering a new skill O experiences extreme anxiety and catastrophic thoughts related to OCD, but demonstrates a high degree of self-awareness and reflexivity in order to manage intrusive thoughts O values relationships that make her feel safe and secure, as well as the opportunity to be open and honest about her own experience without judgement O benefits from reassurance, and having achievements recognised, particularly the additional effort it may have taken to master a particular skill	Socially motivated Practical tasks are challenging Self-esteem based on achievement Self-awareness and freedom of expression facilitate emotional and cognitive regulation 'Open' environments facilitate emotional regulation Need to feel 'seen'

4.2aiii. Reflections on CPAR Cycle 1 (Informing Actions for Cycle 2)

1. Safe Spaces

It became clear during cycle 1 that feeling physically and emotionally safe was a major contributing factor to student co-researchers' ability to engage with learning. One student in particular – K, was unable to enter the classroom as she found it too chaotic and noisy. By sitting in the doorway, K was able to listen and observe, but became overwhelmed on entering the room. Creating a physical environment that K felt able to inhabit safely therefore became a priority following CPAR cycle 1.

Social and emotional safety was also necessary for effective student engagement. A number of students expressed the need for clear instructions and communication to feel confident, and reduce anxiety when undertaking new tasks. Students also communicated self-consciousness with respect to their own abilities throughout both sessions. Creating a non-judgemental environment, where students did not feel under scrutiny was therefore also prioritised. This meant creating an environment where difference was seen as a strength and processes were valued over products – another priority arising from CPAR cycle 1.

2. Opportunities for Flexible Participation

During cycle 1, it emerged that students had a variety of different needs with respect to engagement and participation. To ensure these needs were met, flexible participation was required throughout. Two students experiencing social anxiety and sensory overwhelm could participate effectively by watching and observing, as long as they did not have to actively participate in any tasks. Other students could engage practically with tasks as long as they could self-regulate throughout. This meant moving freely within the space, being able to leave the room and return as required, and talking freely – asking questions, discussing ideas, or simply expressing whatever was on their mind without judgement. Finally, one student experienced poor physical and emotional well-being throughout Cycle 1. Having the flexibility to sit out and return to tasks once they felt able meant that they could remain in the room for both sessions and maximise their engagement overall. Cycle 1

demonstrated that flexible participation for student co-researchers was key to sustained engagement, and should be carried forward into Cycle 2.

3. Confidence to Try

During Cycle 1, students expressed the need for a range of support to increase their confidence to engage with new tasks. For some students, this meant clarity in the form of verbal explanations as well as visual demonstrations before they felt confident to try. Some students were initially willing to try, but needed consistent encouragement and positive feedback to persevere, particularly when the risk of failure was high. Here, modelling behaviours became particularly important; facilitators modelled exploratory behaviours and willingness to fail, and students were encouraged to follow. Finally, 1:1 support from facilitators when required, and peer support was also found to be key to encourage participation during Cycle 1.

4. Experienced Success builds Self-Esteem

Although failure was an integral part of the creative process, even more important to students' sustained engagement was experienced success. Successes formed part of the creative process, in terms of being able to generate ideas, or effectively exploring potential solutions to problems, but it was also important for student co-researchers' self-esteem that they experienced achievements and a tangible outcome at the end of each session.

In session 1, this took the form of a working lamp that they made from scratch and were able to take home with them. In session 2, this took the form of demonstrating the skill of using lighting for dramatic effect. Students responded positively, and intrinsic motivation was seen to increase. It was therefore considered important that opportunities for experienced success were created during Cycle 2.

4.2b. CPAR Cycle 2 – Developing Autonomy as Co-Researchers

Sound

4.2bi. Planning and Actions for Cycle 2

In session 3, students had the opportunity to learn skills for live sound, including setting up a PA system with microphones and using audio software to create effects. In session 4, students built on this knowledge to create their own soundscapes and pieces of music. A large piece of paper was also placed in the centre of the room during this session to give student co-researchers the opportunity to sketch out their ideas for the final performance. The following actions were implemented in Cycle 2 arising from the reflections of Cycle 1:

Action 1 – Create Safe Spaces

For session 3, the classroom was set up traditionally in rows of desks to create a sense of order and safety to facilitate K's participation. An open class discussion about neurodiversity was offered to give student co-researchers an opportunity to ask questions and discuss issues surrounding neurodiversity at school in a non-judgemental way.

Action 2 – Create Opportunities for Flexible Participation

For both sessions 3 and 4, students were given the freedom to choose *how* to engage with practical tasks; they could choose to watch, participate or take the lead, working together in small groups. They also had the choice of *which* elements to engage with, for example, cabling, plugging up, setting up mic stands etc. In addition to task flexibility, they were also able to move freely throughout the space, could sit out, or leave and return freely in order to facilitate self-regulation.

Action 3 – Build Confidence to Try

In cycle 2, students were grouped with peers they felt safe and confident with. For the first task of session 3, student co-researchers were asked to work out for themselves how to

connect a PA. Engaging with trial and error was modelled and encouraged by the facilitators. Student co-researchers helped and supported one another whenever they got stuck, and assistance from facilitators was provided as necessary. This task was intended to support student co-researchers to find their own solutions, using existing knowledge to develop technical skills, and to support one another in doing so. It was also intended to demonstrate how failure is integral to finding solutions in a low-stakes, autonomy-supportive environment.

In session 4, students were given the opportunity to contribute their creative ideas for the final performance in an open and low-pressure environment, by drawing on a large sheet of paper in the middle of the room. This was intended to develop student co-researchers' 'confidence to try' in terms of exercising creative thinking skills – being given an open brief and asked to generate possible solutions. This was offered as an optional task because it was anticipated that some of the student co-researchers would not yet have the confidence to share their ideas, but by removing pressure to engage, some might be encouraged to step out of their comfort zone and share their ideas with the group.

Action 4 – Build Self-Esteem through Experienced Success

Session 3 was designed to create opportunities for student co-researchers to experience success through trial and error and find solutions for themselves, demonstrating both divergent and convergent thinking skills. Setting up a PA provided an opportunity for investigation and discovery at an appropriate level of challenge, where solutions could be found with no previous experience, by comparing the shapes of different connectors and tracing an unbroken line from the socket to the microphone. Through the use of deductive reasoning, student co-researchers were able to derive a successful solution independently and turn the microphone on. This was intended to empower and build self-esteem through experiencing success in autonomous problem-solving.

In both sessions 3 and 4, students were asked to create soundscapes and compositions using audio software. Once again, with a basic understanding of the functionality of the software, competent compositions were created within a single session. Student co-

researchers chose the genre and style of their pieces, and demonstrated pride and self-esteem in what they were able to create. For those with less creative confidence, soundscapes were made using existing sound effects edited and layered together.



Images above – manual mixing desk with microphone (left) and Logic Pro X audio software on a mac (right) which students used to create music and soundscapes.

4.2bii. Observations from Cycle 2

Observations	Personal Experiential Themes
K made a significant effort to be in the classroom at the start of the session. The TA assumed K would find it easier to leave the lesson to do maths. K subsequently left, as resisting would have presented additional challenges in terms of communication and social anxiety	Challenging yourself requires safety to do so Opportunities to challenge yourself must be protected
A demonstrated a clear sense of ownership and pride over what he had created	Creative practice facilitates pride and ownership
No one in the group enjoyed the lecture-style presentation or looked at the handouts	Hierarchical power structures undermine creative practice
Everyone became more engaged and actively challenged by the practical task	Practical tasks facilitate engagement
Everyone became <i>most</i> engaged, animated and excited when using the software to create their own music	Opportunities to be creative are optimally engaging
O works hard and perseveres if she receives continued support with practical tasks	Perseverance requires support

O needs reassurance in her own capabilities to build confidence and self-esteem O is very open and honest, making frequent references to being gay/bisexual	Reassurance promotes self-esteem Open environments facilitate free communication
R enjoys opportunities to work independently and demonstrate competence in practical tasks R enjoys learning new practical skills with minimal input from adults. Competence and capability inform a positive self-image R was most at ease in a group of 3 where he had the opportunity to make independent contributions	Demonstrating competence builds self-esteem Self-directed learner Maintaining individuality within a group
M and O combined their different ideas effectively and responded well to constructive feedback to produce a track that fit their self-selected brief M demonstrates good problem-solving skills and thrives with creative freedom M discussed ideas to get advice and opinions, but felt empowered to accept or reject these ideas freely	Capaciousness of creative practice allows the fusion of competing ideas Confidence in creative freedom Ownership of ideas and process Horizontal power relationships
L physically retreated from the TA, who seemed to be talking-at and doing-to, rather than being-with or listening and attending to L's physical cues. In contrast, L responded positively to the facilitators, listening and observing throughout L's participating from a distance enables him to engage without anxiety or distress	Feeling listened to facilitates engagement Freedom to participate 'safely'

4.2biii. Reflections arising from CPAR Cycle 2 (Informing Actions for Cycle 3)

1. Creative Freedom

During cycle 2, it became clear that as student co-researchers' confidence increased alongside their skills and expertise, they were more responsive to opportunities for exercising creative freedom. In session 3, all students clearly progressed from total disengagement with the lecture-style presentation, to displaying interest, curiosity and engagement with the practical challenge of connecting a PA. Eventually, they became fully engaged and motivated to create their own piece of music. Within this final creative task, however, it was also apparent that some students worked best with a clear brief and defined outcomes, and other students preferred the freedom to determine their own outcomes. This demonstrated that although creative freedom increased task engagement in all cases, there needed to be flexibility regarding the degree of *openness* of creative tasks.

Furthermore, some students benefitted from peer support, and worked most effectively in groups, whilst other students preferred to work alone, pursuing their own ideas or areas of interest. These students found the presence of others distracting or restrictive. It was important for cycle 3, therefore, that students had access to tasks with varying degrees of openness i.e. working to a brief or designating individual outcomes. Also, student co-researchers could choose to work in groups or individually to maximize engagement.

2. Self-directed Learning

Student co-researchers developed autonomy as learners during cycle 2 by engaging with tasks where skills and expertise could be acquired quickly with minimal input from facilitators. This meant engaging in practical tasks with limited possibilities to explore, such as wiring up a PA, so that a successful outcome could be achieved independently with relative ease through trial and error. With more openly creative tasks, such as making a piece of music or a soundscape, this required software that was user friendly and intuitive, so that once the basic functionality had been explained, student co-researchers could navigate it with little external help. This software facilitated the development of students'

divergent and convergent thinking skills, as it both facilitated the exploration of multiple creative possibilities as well as the selection of appropriate choices by only offering loops within the same musical key as those already selected, for example. This meant that even without any previous musical knowledge, students were able to compile compositions that sounded musically accomplished with relative ease.

Despite gaining basic skills and proficiency in a short time frame, students still benefitted from constructive feedback to refine their creative ideas. Being able to ask advice, and having the freedom to choose whether or not to take that advice was also important. Both of these things increased students' experience of autonomy with respect to their learning, which also improved their motivation to engage. For cycle 3, opportunities for self-directed learning should be provided at an appropriate level of challenge to promote autonomy and experienced success.

3. Horizontal Power Structures

Once the student co-researchers had the experience of working in an interactive and exploratory way during cycle 1, they found the transition back to a lecture-style presentation during session 3 both jarring and demotivating. Although the intention was to create a supportive space by establishing the positive value of neurodiversity, student co-researchers actually felt disempowered by the facilitator's attempt to control the narrative, with comments like 'we don't want to talk about neurodiversity' and 'when can we get back to the creative stuff?' It became clear from this brief interaction that the facilitator's role was to hold a space where student co-researchers could be themselves and express themselves freely, but attempting to manage this relational space was experienced by the student co-researchers as an infringement of their new-found liberty within the process.

It was only through transgressing this boundary that the relationship established during the first cycle became apparent - meaningful co-production relied upon horizontal power structures where student co-researchers could determine *their own* perspectives upon neurodiversity and learning. Going into cycle 3, protecting horizontal power structures meant avoiding scenarios that positioned the facilitator as the authority on any particular

subject, and maximizing opportunities for student co-researchers to determine both session content and narrative as fully as possible.

4. Protecting Safe Spaces

Protecting safe spaces means protecting student co-researchers' autonomy and freedom to choose how and when to participate. Although safe spaces and opportunities for flexible participation were explored in cycle 1 and established during cycle 2, some students (L and K in particular) still experienced infringements upon their freedom to choose, and were coerced into conformity by teaching assistants, teaching staff and the school inspector on different occasions. It became clear that merely establishing student co-researchers' autonomy and freedom to choose within sessions was insufficient, and that these freedoms needed additional protection from external interference. For example, far from being physically excluded from the space, observing and/or participating in the doorway was a way for K to take control over her participation in sessions. For cycle 3, these choices needed to be made explicit to wider ACE staff and protected as much as possible.

4.2c. CPAR Cycle 3 – Taking Responsibility as Co-researchers

Making

4.2ci. Planning and Actions for Cycle 3

During cycle 3, the student co-researchers were introduced to creative making techniques, including puppet making, model building, painting and assembling. They developed their skills across sessions 5 and 6, and where tasks were allocated by facilitators, they complimented individual skills and areas of interest.

Action 1 – Give student co-researchers freedom to choose

In cycle 3, student co-researchers were given the freedom to choose what to make. They were asked what they would like to do, and all necessary materials were provided. Student co-researchers also had the choice of whether to work alone, in pairs or as part of a team.

One student co-researcher, A, chose to work alone on his own puppet making project, R and J chose to work together on a construction project, M came up with a large and complex idea to build a model 'Winter Wonderland' and H, N and O chose to assist M, where M assumed the role of project manager and allocated tasks to the rest of the group. K worked on individual elements of the larger project from the corridor. Having the freedom to choose meant student co-researchers could work in a way they felt most comfortable with, and assumed a level of creative freedom appropriate to their skills and confidence.

Action 2 – Provide opportunities for self-directed learning

It became apparent during cycle 2 that student co-researchers were more autonomous and self-directed when new skills could be acquired quickly and easily with minimal input from facilitators. In cycle 3, student co-researchers were introduced to a variety of creative making techniques which required only a brief introduction, but where proficiency could be achieved quickly with practice and appropriate feedback. Both convergent and divergent thinking skills were gained through working directly with materials, giving student co-researchers control over their own learning, and an opportunity to experience both autonomy and competence, leading to increased motivation to engage.

Action 3 – Protect horizontal power structures

The organization of the physical learning environment, the choice of task and pedagogical practices all contribute to the promotion and maintenance of horizontal power structures. In cycle 3, students could arrange their own work space and choose their own activities. Because of the opportunity for self-directed learning, facilitators could move away from a position of expertise to act as 'guide-on-the-side', providing input only when required, allowing student co-researchers to take responsibility for their own learning.

Action 4 – Protect 'safe spaces'

In cycle 3, it was made clear to ACE staff operating alongside the project that students had freedom to choose how to participate in sessions. This included whether or not to speak,

whether or not to take an active role, and in K's case, whether or not to enter the classroom or remain in the corridor. As a facilitator, I made an additional effort during cycle 3 to bring the workshop to K, through text messages to K's mother, by negotiating tasks via K's TA, and bringing materials out to her during the session. Although student co-researchers could take control of their physical environment during this cycle, *social* space was much more difficult to navigate and protect. Protecting safe social spaces for students such as K and L, who were selectively non-verbal, required additional communication with ACE staff to explain that these students were accessing the session in an acceptable way, and did not need to be encouraged to behave differently.



Images – student co-researchers painting gingerbread houses for a Winter Wonderland Model (left) and constructing the landscape (right).

4.2cii. Observations from cycle 3

Observations	Personal Experiential Themes
M thought of practical solutions to problems for the performance in his own time, drawing a bird's eye plan view and photographing it for the session	Intrinsic task motivation promotes problem-setting and -solving behaviour
M demonstrated confidence and was task orientated throughout	Intrinsic task motivation promotes self-confidence
M became a 'project manager', committed to making the piece a success, but also opening up opportunities for others to contribute	Taking the lead Working to strengths Capaciousness
M facilitates tasks, gives directions and help where required, but also gives his co-workers space to exercise their own creative freedom	Generosity through teamwork Conviviality

H, M and O worked well together throughout, reassuring one another as well as seeking reassurance from facilitators Painting gingerbread houses facilitated a discussion about students' individual differences. The atmosphere was open and supportive, where students felt able to share challenges faced The discussion was student-led, but Mr. S supported the conversation by self-advocating as autistic	Peer support Creative practice facilitates openness Facilitators can support capaciousness
R is independent and knows what he wants. He is confident to solve problems on his own and is highly task orientated, as long as it is a task he is interested in and has the skills to complete	Task orientated Strength-based motivation
J lacks confidence with more creative or 'open-ended' tasks, preferring tasks with a clear beginning, end and structure J generally chooses tasks from a social perspective rather than for the task itself. Taking over the Modroc then the others had finished allowed J to work on his own without being judged or observed by others	Clearly defined tasks build confidence and facilitate engagement Socially motivated Independent working can facilitate skills acquisition
K actively participated in a session for the first time. This was facilitated by one-to-one support from a TA that she feels supported by and trusts K produced something that was related to the project, demonstrating creativity in selecting colours for the house and care in applying the felt. K was motivated by an interest in the task itself	Trusted adults facilitate engagement Feeling safe to engage Strength-based task allocation facilitates engagement
O frequently doubts herself and lacks confidence with practical tasks, but always takes part, tries her best and clearly enjoys what she is doing. Mr. S and I respond to this lack of confidence by highlighting how much she is enjoying herself, foregrounding process over product	Perseverance despite challenges Self-motivated Focus on process facilitates engagement
N's personal circumstances affect her ability to concentrate in sessions, but being	Freedom to participation

able to 'dip in and out' makes participation easier and more likely There is an element of trust here which is reciprocated with an active effort to join in on her part	Trust facilitates reciprocal engagement
H is excellent at helping others, but finds self-direction, decision-making and lack of clarity challenging M identified this, and provided the clarity needed to allow H to progress H demonstrates creativity within clearly defined boundaries. He will make creative choices as long as the choices are limited. This may change with confidence and experience	Clarity of tasks promotes engagement Limiting choices promotes creative engagement Supporting autonomy
A seems to work best on his own, with freedom to choose, but where the choice is not too great as to be daunting	Limiting choices promotes creative engagement

4.2ciii. Reflections arising from CPAR Cycle 3 (Informing Actions for Cycle 4)

1. Clearly Defined Roles

During cycle 3, some students, such as M and R confidently assumed roles with respect to their own creative practice. They had a clear vision and became increasingly motivated when able to pursue their creative interests. Other students felt more comfortable being given clearly defined tasks and instructions to follow. In the case of H, N and O, this meant following M's lead, as he delegated effectively to his fellow student co-researchers. J needed help from facilitators to find tasks suited to his skill set, as he was accustomed to following R's lead, but did not have the skills to engage in the same way as R. A was eager to work independently and pursue his own creative ideas, but needed help from facilitators to develop his convergent thinking skills and manage the wide range of choices available to him to progress effectively. For cycle 4, it was anticipated that allocating clearly defined *roles* (as opposed to individual *tasks*) might help students to exercise autonomy in a manageable way. This should benefit student co-researchers who thrive on creative

freedom, but also encourage those who need clarity and direction with respect to decision making.

2. Strength-based task allocation

During cycle 3, where tasks were allocated according to strengths and interests, both engagement and motivation noticeably increased. In addition, confidence and a willingness to take risks also increased. It became clear that having freedom to choose needed to be tempered by task management on the facilitators' part, identifying student co-researcher's strengths and interests, and making suggestions accordingly. The more student co-researchers lacked experience of creative practice, confidence in their own abilities, or felt uncomfortable with open-ended tasks, the more they benefitted from external input. This resulted in positive learning experiences and eventual success. It was anticipated that as student co-researchers' skills and confidence increased, the less learning would need to be scaffolded. For cycle 4, however, some students would be encouraged to work in areas that matched their particular strengths and skills.

3. Group working

Although some students preferred to work alone, a particular dynamic emerged with M taking the lead on the Winter Wonderland model, facilitating the roles and responsibilities of other student co-researchers. In cycle 3, M demonstrated capabilities and intrinsic motivation not observed in previous sessions. M took the lead considerably and respectfully, paying attention to the needs of his fellow students. He delegated tasks appropriately, and identified particular strengths and interests of his fellow students. H, O and C also worked effectively as a group, supporting and encouraging one another and providing constructive feedback to facilitate each other's progress. This was the clearest example of students 'taking responsibility' as student co-researchers, and for M in particular, provided the first example of a student effectively 'taking the lead'. For this reason, it was important that further opportunities for group work were presented in cycle 4, to determine if student co-researchers would respond in a similar way under slightly different conditions, and how this could be facilitated by creative practice.

4. Supporting autonomy

As student co-researchers became more autonomous in cycle 3, the kind of support they required from facilitators differed from previous cycles. In earlier sessions, student co-researchers required clearer direction. In many cases, they responded well to having a clear path to follow, or a definite outcome to pursue. In this kind of learning environment, student co-researchers looked to facilitators for guidance and direction, as well as to model exploratory behaviours, giving them the confidence to try and generate novel solutions to problems (divergent thinking skills). In cycle 3, however, student co-researchers benefitted more from facilitators adopting a supportive role, providing advice and suggestions only when requested. It also became apparent that student co-researchers felt confident enough to evaluate suggestions for themselves, even rejecting them in some cases, demonstrating the emergence of convergent thinking skills and the ability to select their own solutions to problems. Students who were more self-directed did not need facilitators to allocate tasks, but did still benefit from having their choices restricted, to make the creative process more manageable. During cycle 4, it was important that facilitators continued to support student autonomy by only providing sufficient support required for sustained engagement.

4.2d. CPAR Cycle 4 – Taking the Lead as Co-Researchers

Film/Making

4.2di. Planning and Actions for cycle 4

For the first filming session, everyone was allocated specific roles, arising from individual conversations. Roles were allocated according to skills, talents and preferences, and to provide clarity with respect to individual responsibilities.

O – writer/director/news reporter/weather girl

N – sound

J and R – Lighting and filming

A – news reporter in the field

H – news reporter

M – either news reporter or model maker when not required

K – model making

Basic film making skills were introduced including camera work, lighting and sound for film, script writing/performance and cinematography. A greenscreen newsroom was set up with O and I as broadcasters, and A delivering an outside broadcast. In session 8, students were allocated making tasks according to their individual areas of interest, in addition to the film making equipment, providing them with choices.

Action 1 – Allocate clearly defined roles that work to individual strengths

For session 7, student co-researchers were allocated clearly defined roles (as above). These roles were negotiated with the young people according to their individual strengths and interests. It was anticipated that this would allow those lacking in confidence to exercise creative freedom, and provide clarity for those who required clearly defined parameters. Working to strengths would also increase the likelihood that individual student co-researchers would experience success in their role, and this would increase confidence and engagement, encouraging them to push the boundaries of what they were capable of. One example would be operating a video camera – while the student co-researcher knows what they need to film, they have the creative freedom to set up a shot, and decide when to shout ‘action’ and ‘cut’. This enables them to take control over the process, exercising creative freedom within defined limits.

Action 2 – Provide opportunities for group work

The opportunity for filming enabled the whole class to work together towards a common goal, allowing student co-researchers to retain their individuality by assuming distinct roles. It was anticipated that this would facilitate effective group work, building upon the relationships forged in cycle 3, whilst also providing opportunities for peer support, open communication, problem solving and attending to one another’s needs. However, the nature of filming meant that much of the focus was on the few students willing to perform on camera. Although the others worked well together, they assumed supporting roles with

fewer opportunities for autonomy and creative freedom. For this reason, in session 8, creative making was re-introduced alongside the option of filming to ensure that everyone was effectively occupied and received equal attention.

Action 3 – Provide ‘autonomy supportive’ pedagogy

In cycle 3, facilitators played an important role in supporting student autonomy through advice and reassurance, structure and support, which enabled student co-researchers to take risks within a safe and supportive atmosphere. Consequently, students felt able to push boundaries, and autonomous creative decision making was facilitated. In cycle 4, students were given as much creative freedom as they felt comfortable with, and were encouraged to make independent decisions, but support and advice was also available throughout. If student co-researchers gave suggestions for something they would like to try, facilitators actively supported the development of their ideas. In this way, student co-researchers could take the lead during cycle 4 in a way that they had not been able to do previously.

A’s ‘Outside Broadcast’





Images – student co-researchers filming a greenscreen news report (top), field report with Santa look-a-like (bottom left) and weather report (bottom right).

4.2dii. Observations from Cycle 4

Observations	Personal Experiential Themes
There is a general decline in K's attendance and capacity to participate, which trusted adults attribute to an overall anxiety about school and her own future	Anxiety reduces attendance and engagement
M demonstrates evident self-motivation and takes pride/ownership over his own work. He also has a good awareness of the needs of others and accommodates them	Ownership and pride
M is self-directed, but can become distracted or get stuck on a problem. With some redirection, he is able to get back on track and reengage	Consideration of others
R and J will engage well if a task has value and they can see the purpose	Self-directed learner
R is more confident and self-motivated than J, but both are very conscious of their peers and this motivates behaviour	Needs support to stay on task
When a task becomes too challenging, with some help and encouragement, they were able to remain engaged	Understanding personal relevance
A enjoys creative freedom, artistic agency and doesn't take himself too seriously. He is highly self-motivated when invested in a task	Socially motivated behaviour
	Encouragement ensures continued engagement
	Creative freedom
	Motivated by personal investment

A has good problem-solving abilities, but can get stuck on a particular problem or become distracted easily. He benefits from others keeping him on task to remain focused Despite needing support to complete a step-by-step task, A also works best when he is able to make his own decisions and follow his creative interests and ideas	Needs support to stay on task Freedom to choose Creative autonomy
O wants to engage, but is self-conscious about being 'seen'. She takes risks despite anxiety and is motivated by success. Her attempts to 'put herself out there' are acknowledged and rewarded	Self-consciousness Motivated by successful outcomes Recognition of effort
N benefits from the freedom to engage in different ways throughout the session. She has bursts of activity and concentration, but then requires some recovery time. Choice of activity provides the scope to remain engaged throughout whilst also being able to self-regulate	Freedom of participation Fluidity Choice facilitates sustained engagement Self-regulation
H prioritizes social concerns over task content when making decisions i.e. he is more concerned about who he works with than what he is doing. He is rules-oriented and needs clarity over ambiguity, but will always stick to and complete a task he has agreed to do As well as needing clearly defined tasks, H also needs the social freedom and autonomy to decide <i>how</i> to do something. He likes the practical task to be clear so that he can focus his attention and energy on the 'social' task of participating	Socially motivated Clarity of task Personal investment to complete tasks Social freedom

4.2diii. Reflections arising from CPAR Cycle 4

1. Supporting sustained engagement

As student co-researchers started to take charge, there was a greater need for sustained focus and engagement as the tasks became longer and more complex. For this reason, some students needed support to remain 'on task' throughout, but this was generally light-touch encouragement, recognition, or minor adjustments to the task. When supported in this way, student co-researchers were able to pay attention and remain engaged for longer.

2. Positive feedback and constructive criticism

Student co-researchers benefitted from positive feedback from both staff and peers. Being able to see what they had achieved also helped to sustain engagement and motivation. It was important to acknowledge personal effort and perseverance over outcomes. As student co-researchers became personally invested and intrinsically motivated by tasks, they also appreciated opportunities for constructive criticism, as this helped them to make progress in their particular area of interest. It was, however, necessary to gain sufficient confidence and experience in previous cycles before constructive criticism could be utilized effectively.

3. Personal investment

Students who were personally invested in a task became more self-motivated and able to engage for longer. Some students demonstrated a notable increase in self-confidence and could attend to the needs of others as a consequence. Personal investment arose as a result of 'positive niche construction', having the opportunity to build on strengths and interests and experiencing success in a particular discipline. Positive feedback from peers also played a significant role in student co-researcher's personal investment.

4. Supporting autonomy

Within cycle 4, two aspects of student autonomy emerged – being able to decide *what* to do and *how* to do it. Some students wanted the freedom to make their own decisions in choosing *what* to do, whilst others preferred clearly allocated tasks, but wanted the freedom to choose *how* to address them. This distinguished between students who wanted to exercise divergent and convergent creative thinking skills and others who were more concerned with developing technical expertise. By having opportunities for both, student co-researchers could develop their own creative processes. This led to more sustained engagement and greater personal investment.

4.3. Part 2 – Data Analysis of cycles of CPAR

There are 3 research questions that this data analysis addresses, and each will be discussed with respect to relevant theory as follows:

1. How can creative practice be used to co-create effective learning environments in collaboration with neurodivergent young people?

- a. Exploring the relationship between **crip theory** and creative practice, specifically how creative practice introduces **fluidity** (Abrams, Floyd and Abes, 2024) into learning processes so that students can engage with tasks in a variety of different ways; creating opportunities for **interdependence**, where students and facilitators work collaboratively, sharing knowledge, skills and interests (Liddiard et al., 2022); facilitating **‘crip time’** (Kafer, 2013), where tasks can be extended, shortened or adapted to accommodate the varying needs of a diverse group of students.
- b. Amabile’s Componential Theory of Creativity (2013) gives the three components of creativity as **technical expertise**, **creative thinking skills** and **motivation**. It is anticipated that all students will demonstrate these components in a supportive learning environment, and will consequently experience positive learning outcomes.

- c. Creative practice should facilitate the production of **'curricular cripistemologies'** (Mitchell, Snyder and Ware, 2014), where difference and diversity are seen as strengths in the production of new knowledge, in open and exploratory learning environments where freedom of expression and thought are encouraged.

2. How can creative practice co-produce educational environments that meet the widest range of needs, enabling all students to be engaged and motivated to learn?

- a. Creative practice supports a **strengths-based approach to learning**, and the potential for 'positive niche construction' (Armstrong, 2012), where the 'least restrictive' physical, social and pedagogical conditions for learning can be created. Creative practice should support conditions whereby tasks can be adapted/created that work to the strengths and interests of individual students.
- b. Through creative practice, students' need to experience **autonomy, competence and relatedness** should be fulfilled, as described by the **Self-Determination Theory** of motivation (Deci and Ryan, 2000), causing all students to be intrinsically motivated to learn.

3. How can creative practice facilitate pedagogical conditions supportive of neurodivergence, in addition to promoting personal and social development, improved communication and collaboration between students?

- a. Creative practice should support a variety of pedagogical techniques including opportunities to act as a 'guide on the side' and **'meddling in the middle'** (McWilliam, 2008), characterized by a horizontal teaching relationship, where learning takes place through collaboration, experimentation and risk taking. This supports personal and social development by enabling students to take ownership over their own learning.
- b. **Pedagogies of Taking Care** (Atkinson, 2022) require educators to develop novel pedagogical practices in direct response to individual learning needs as they arise. This requires 'taking care' by valuing difference and diversity, as well as an

attitude of ‘speculative pragmatism’ that allows imaginative propositions to develop.

- c. Creative practice should facilitate both ‘**capaciousness**’ (Bragg and Manchester, 2001) and ‘**third spaces**’ of learning (Hall and Thompson, 2007), allowing educational environments to become more permeable and fluid in response to disability and difference. New possibilities for learning together are created and physical spaces become multi-functional to allow new possibilities for action.

Question 1. How can creative practice be used to co-create effective educational environments through ‘cripping’ learning spaces, and by supporting the development of curricular cripistemologies?

Student co-researchers initially experienced a variety of different challenges when engaging with creative practice and practical tasks for the first time. For some, those challenges related to the need for fine motor skills, the openness of tasks, lack of clear structure or expectations. There were also sensory challenges presented by open workspaces and the noise created during practical sessions. This meant that it was initially important for student co-researchers to feel safe, building their confidence to try through experienced success and having the freedom to choose how and when to participate in tasks.

The following extract from observation notes demonstrates how student co-researchers engaged in a process of ‘cripping’ their educational space to meet their individual needs:

“O found all of the manual tasks quite challenging, including rigging the crossbars and tightening the nuts, but worked well with N to achieve this. She said it was ‘too hard’, but persevered with support from N... O had difficulty with tying knots, but after I demonstrated a couple of times, she had a go. She was still a bit confused, so I did it with her a couple of times, then she managed to do it on her own. She was really pleased, exclaiming ‘Look! Is that right?!’ I said ‘yes, it’s great’...

She tried to pick up 3 scaff bars on her way out, but realising that this was dangerous and that she was likely to hit someone, opted for one instead... A few times during

the lesson, she referenced having trouble with practical things because of her dyspraxia, and also that her OCD makes her nervous, so she was afraid to electrocute herself and that she might get burnt on the light. Despite these fears, she worked safely and had a go at everything”.

This extract describes O persevering with a challenging task because of encouragement from N, demonstrating the importance of peer support and interdependence, as described by Liddiard et al. (2002), where creative practice provides opportunities for students to collaborate, share knowledge and skills, and co-produce effective learning environments together. Once O experiences success in rigging the crossbars, she attempts the more challenging task of tying a knot, and eventually feels confident enough to carry scaff bars. Gaining skills and expertise in this way has been shown to increase intrinsic motivation to engage in further challenges (Amabile, 2013). Importantly, however, O also had the freedom to decide which tasks to attempt at each point, and she shifted her attention between tasks throughout the session. This allowed her to progress at her own pace, effectively managing both her anxiety and attention, leading to a sustained period of engagement and greater experienced success. This exemplifies how the fluidity of creative practice (Abrams, Floyd and Abes, 2024) and engaging with ‘crip time’ (Kafer, 2013) can lead to effective ‘cripping’ of educational spaces.

Another student who effectively ‘cripped’ her educational space through use of flexible participation was K. From initial discussions with K’s parents and ACE staff, it was clear that K found practical and creative tasks challenging because of the lack of structure and clear expectations, as well as noise in the classroom. It was agreed that K could sit in the doorway to observe the session without having to physically participate or enter the space. Ideally, K would have been provided with a quiet space to work, but no such space was available. However, as sessions progressed, it became clear that by choosing to sit in the doorway, K had negotiated an effective solution for herself, where she could participate on her own terms and manage her anxiety sufficiently to engage with the session.

One session, however, a school inspector arrived, which undermined K’s ability to participate flexibly, as this observation demonstrates:

“A school inspector came into the class during this session. This was pre-empted by L entering the room and asking what the lesson objectives were before writing them on the board. The lesson paused when the inspector arrived, in order for us to explain to him what we were doing. K was physically pushed into the room by a teaching assistant from another class during the inspector’s visit. She seemed petrified and pushed past everyone to get back out of the room. For the last 20 minutes, she came back in and stood by the door. It was unclear whether this was her own choice, or at the request of one of the teaching staff. I texted her mum after the session to let her know what had happened”.

Here’ K’s freedom to choose was undermined, as well as her ability to manage her own anxiety and engage in effective learning. This demonstrates the importance of implementing mechanisms to defend ‘crippled’ spaces that are easily destabilised by normative expectations, particularly for selectively or non-verbal students. Free from external pressures, ACE staff generally demonstrated care and consideration towards students. When the pressure increased however, expectations became highly skewed in favour of neurotypical behavioural standards. In this incident, K’s extreme anxiety was completely disregarded to create a performance of participation for the inspector. It is therefore essential that ‘crippled’ educational spaces are safeguarded at an institutional level.

This was not the only time that K’s attempts to crip her learning environment were undermined. In the following session, the classroom was arranged in a more traditional way, with rows of desks. K was sitting alone in the classroom when we arrived, before any of her fellow students. K’s presence in the classroom was significant, given the incident of the previous week, and indicated a considerable effort on her part. It also implied that forewarning her mum about the content of the session had helped to regulate K’s anxiety, enabling her to take this new step. However, her personal effort was unwittingly undermined when K was removed from the session by a TA to work on her maths homework instead.

Here, K's TA was working within her presumed best interests, but the decision to remove her was based on prior knowledge that K found creative sessions challenging. Consequently, K's presence in the room, a clear indication of willingness to participate, was dismissed. In an attempt to alleviate K's discomfort, the TA suggested an alternative activity and K complied. The significance of K's attempt to engage was missed by a failure to interpret the situation accurately. This was the second example of K's attempt to manage her own learning environment being undermined by external agents. Our agreement ensured that K had the autonomy to decide when to enter the room, when to remain outside and how to participate in activities. Having the freedom to choose resulted in K becoming incrementally bolder, and willing to challenge herself. The fact that she had begun to do so required a different response from ACE staff, and this opportunity was missed. Giving K the freedom to choose meant actively creating a space for new possibilities for action by *not-knowing* what was best for K, and genuinely letting her decide for herself.

Atkinson (2022) explores this deliberate act of not-knowing, when he asks

can we put established epistemological frameworks aside in order to allow that which is 'other' to grasp us and, in such grasping, change or even transform the grounds of pedagogical practice? (Atkinson, 2022, p.16).

In this way, putting aside our established knowledge and practices allows otherness to show its self in its alterity, enabling new possibilities for engagement to emerge. Halberstam (2014, p.152) explains 'any criptistemology worth its name should identify modes of not knowing, unknowing, and failing to know'. This suggests that to make space for difference, to discover new ways of being-with, it is necessary to first un-learn what we think we know, challenge our assumptions and be present in our not-knowing, ready to respond to whatever presents itself. Failure to do so means maintaining established patterns of behaviour, and missed opportunities to do things differently.

In other situations, however, K's TA provided essential support for her, by communicating her anxieties and helping us to establish tasks that would work to K's strengths and interests. In one session, K's TA identified K's favourite colour materials, enabling her to

have some design input and take ownership over the creative process. The TA also explained that K was a 'perfectionist', and that she worried about tasks being completed to a high standard. This provided an opportunity to reassure K that she would be given sufficient time to complete the task to her satisfaction, an example of how 'crip time' can be facilitated through creative practice (Kafer, 2013). This relationship also highlights the importance of interdependence (Liddiard et al., 2022) in 'crippled' educational spaces, with the TA providing vital personal information and support. As a result, positive and accessible learning environments were successfully co-constructed for and with K, where the TA played a key mediating role in understanding and communicating her preferences. Together, these examples of success and failure in K's attempts to co-construct her learning environment expose the tension between providing support and protection for neurodivergent students and sometimes actively 'not knowing' what is in their best interests to facilitate autonomous decision-making.

'Not knowing' was key to the emergence of curricular cripistemologies for other student co-researchers, arising during open class discussions, where neurodivergent perspectives were shared and valued as 'active vectors of insight from which one may engage in classroom models of collective understanding' (Mitchell, Snyder and Ware, 2014, p.314). Creative practice requires students to be both self-aware and reflective to fully engage with the process, which presented opportunities for collective understanding and shared values to be established. In the following observation, O discussed her hopes for the future, contemplating how challenges with physical coordination informed her choices. This progressed into a discussion of dyspraxia, dysgraphia and the difference between autism and Asperger's Syndrome.

"I asked O if she would like to be a TV Presenter or a weather girl when we work with the greenscreen in a couple of weeks, and she said she definitely wants to be a weather girl because that's her dream. She also discussed how she finds it really difficult to do things that require physical coordination, to which I asked if she might be dyspraxic, and she said 'yes! And I have trouble with my handwriting too!' and I explained that that might be dysgraphia, [but] she said that she usually just puts

everything down to her 'little autistic brain'... She then asked me if Asperger's was the same as autism, at which point H became very interested in the conversation...

Mr. S explained that he was on the autistic spectrum and spoke a bit about how it affected him. H added that when he was younger, he started spontaneously using sign language at a very young age. I explained that that might have been consistent with a diagnosis of Asperger's, but they no longer make the distinction, although some people still choose to self-identify in that way, and that is their choice."

The student co-researchers actively engaged in this discussion when it became personally relevant to them, asking questions and sharing existing knowledge without judgement. As the discussion progressed, influenced by the contributions of the facilitators, a change of tone occurred as deficit perspectives were undermined, and 'neurodiversity-as-difference' perspectives were established. When Mr. S contributed his autistic experience as a positive role model, this transformed into 'neurodivergence-as-positive-identity', leading H to share an example of how he was able to do something exceptional as a young child.

In this extract, 'curricular cripistemologies' are established and students' lived experiences are validated as providing unique insights into different ways of experiencing the world. Furthermore, creative practice facilitated the conditions for this interaction, as students were engaged in a practical group task at the time, where open conversation naturally flourished. This contrasts with my previous failed attempt to initiate a conversation around neurodiversity in session 3. On reflection, this failed attempt should have been initiated by those with lived experience, in order for them to define the parameters of the conversation and to encourage open communication of ideas, as demonstrated in the extract above.

There were other instances where the nature of creative practice had a more direct influence on the potential for crippling educational spaces. The following observation demonstrates how creative practice introduces fluidity and 'crip time' into the learning process:

“O and I were the news broadcasters. I had asked O to write a script, but she had forgotten to do this, so we improvised. For the first few takes we improvised something about the sleigh being stolen... In the second half of the session, N had [created a] musical underscore in Qlab, so we reshot the scene with a news bulletin underscore.”

This demonstrates how the fluidity of creative practice facilitates neurodivergent students’ learning. O and I negotiated a script writing task in the previous week, which she had forgotten to complete. However, we improvised and subsequently, filming progressed uninterrupted. Furthermore N was able to observe throughout and produce a piece of music to underscore the scene. We then re-recorded it to accommodate N’s soundtrack. This fluidity (Abrams, Floyd and Abes, 2024) within the creative process protected against negative consequences by providing opportunities to ‘try again’; O and I were able to improvise a scene, and N could work at her own pace, introducing her composition at a later stage.

Another example of this occurred during the semi-structured interviews at the end of the research phase, where it became clear that H was upset about having missed his opportunity to film alongside O due to illness. To remedy this, we were able to film H’s section separately and edit it into the news report afterwards, to enable H and O to appear side by side on screen. This is an example of how creative technologies facilitate ‘crip time’ (Kafer, 2013). Video editing techniques removed the barrier of ill health from the student co-researchers’ ability to collaborate meaningfully on the project.

C was another student who experienced persistent ill health and periods of exhaustion, meaning that she was absent from the majority of sessions. A member of staff explained that she was usually too tired to come in by Friday. Despite her absences, when she did attend, C was immediately able to participate in making M’s Winter Wonderland model, chatting and building alongside M. This demonstrated an alignment between creative practice and ‘crippled’ educational spaces – because of opportunities for interdependence and peer support (Liddiard et al., 2022), it was possible to access a creative task at any point by pairing up or working alongside someone else who could share their knowledge and

expertise. Individual tasks became collaborative, adapting in response to those who engaged. This enabled someone to join a project part way through and still have a positive and engaging experience.

Question 2. How can creative practice co-produce educational environments that meet the widest range of needs, enabling all students to be engaged and motivated to learn?

As previously discussed, engaging with creative practice presents student co-researchers with a variety of physical, social and emotional challenges that they might not encounter through more traditional educational practices. However, as evidenced, creative practice also presents opportunities for student co-researchers to find their own solutions to navigate challenges effectively, but this requires them to be sufficiently motivated to try.

Deci and Ryan's (2000) Self Determination Theory states that fulfilling our basic psychological needs for competence, autonomy and relatedness increases our intrinsic motivation to engage with a particular task. A clear example of this is when O attempted to tie a knot for the first time, despite her dyspraxia presenting challenges with fine motor control. O experienced *relatedness* through N's encouragement and support. She experienced *competence* when she successfully managed to tie her first knot. This gave her confidence and a sense of achievement, leading her to the greater challenge of carrying scaff bars. O demonstrated *autonomy* by making an accurate assessment of how many she could carry safely without causing injury to herself or others. Her assessment proved to be accurate. She then chose to help tidy up at the end of the session. This is a further example of *intrinsic motivation* – O chose to act irrespective of any external rewards. This may have arisen as a consequence of the support she received from others throughout the session.

The nature of creative practice can also promote experiences of autonomy, competence and relatedness as the following observation demonstrates:

"M and O were most engaged when making a soundtrack using Logic Pro. I asked what kind of song they would like to make, and O said 'romance' and M said 'horror', so I suggested that they could make a kind of movie soundtrack that started off

romantic, but that became sinister and mysterious, and ended in horror/threat. When they showed me their first attempt... there was a lot going on at once. I suggested that they could 'weave' the track so that different sounds were fading in and out to create shifting focus and tension. I came back later, and this is exactly what they had done, and it sounded great. They continued to work on the track through to the end of the lesson, saving it on the desktop as 'The Best Song in the World'. They worked well together throughout the session and seemed proud of what they had achieved."

This example demonstrates how creative practice can fulfil both relatedness and autonomy simultaneously, as both students followed their individual creative interests, but were also able to work together by amalgamating their ideas. The intuitive nature of the software enabled the students to develop and demonstrate both divergent and convergent thinking skills quickly and with relative ease. They each generated multiple different ideas for different sections of the piece, and whilst their first attempt technically fulfilled the brief, with some basic direction, they were able to refine it into something that they felt proud of.

This 'autonomy supportive' style of teaching has been shown to 'catalyse in... students greater intrinsic motivation, curiosity, and desire for challenge' (Ryan and Deci, 2000, pp.70-71). By providing student co-researchers with support and direction to discover things for themselves, they will take ownership over their own learning. This learning environment was co-produced with the facilitator observing from a distance, offering help and support only where necessary, and 'checking in' at different points to monitor progress and provide feedback. Open communication was maintained throughout, where students could ask questions or request input at any stage. This maximized the students' experience of autonomy and competence, and increased their motivation to engage. The nature of creative practice allowed them to combine their individual ideas, meaning that relatedness through effective collaboration was also fulfilled. Saving the song as 'The Best Song in the World' was a testament to their combined sense of achievement.

As learning becomes increasingly self-directed, students' experience of autonomy and competence also increases. Sometimes this is supported by intuitive software, tools or

practices that enable skills to be acquired quickly and with relative ease. Sometimes the task itself facilitates effective problem-solving strategies. However, where tasks become more open, exploratory and creative, students' motivation to engage evidently increases, as the following observation shows:

"The students worked in pairs setting up the live sound equipment, with the exception of R, who wanted to do it on his own. Giving students equipment which they had to figure out how to set up themselves, with help where needed, was a successful strategy. Tasks were given out one by one, so students could attempt one task, before being offered help, then given another. This made each challenge more manageable and held their attention throughout..."

The session moved forward on a decidedly upward trajectory. No one was interested in being given a lecture at the beginning, but everyone became more engaged by the practical task of wiring up and experimenting with live sound. Finally, everyone was the most engaged, animated and excited, when working with the music software and creating their own pieces and soundscapes. It seems that completing practical tasks, solving problems and figuring things out for yourself is quite engaging, but having the opportunity to be creative and make something new is most engaging of all."

This session provided opportunities for transmissive, practical and creative learning, with the students' motivation and engagement noticeably increasing throughout each stage. The practical and creative tasks included all three components of Amabile's Componential Theory of Creativity (2013) – expertise (technical, procedural and intellectual knowledge), creative thinking skills (imaginative problem-solving abilities) and motivation (intrinsic vs. extrinsic). The students remained motivated, and were challenged at an appropriate level. They were guided through each step, but were also encouraged to address problems independently, requiring a degree of both divergent and convergent creative problem-solving ability. During the final part of the session, students had the opportunity to make their own music. This relied much more heavily on creative thinking skills, where some technical expertise was required, and it was thought that students' intrinsic motivation

increased as they were observed to engage in tasks for longer and with increased enthusiasm, following their own ideas and areas of interest.

This demonstrates how creative practice, to varying degrees, produces learning environments that are open and exploratory, where freedom of expression and thought are encouraged. In this situation, both divergent and convergent problem-solving strategies become a real strength (Mitchell, Snyder and Ware, 2014) and students are increasingly motivated when they experience positive outcomes. To increase the likelihood of positive outcomes, teachers and facilitators can also engage in ‘positive niche construction’ (Armstrong, 2012). Positive niche construction is a strengths-based, social-ecological approach to learning, where the least restrictive physical, social and pedagogical conditions are used to facilitate engagement. Learning conditions are created that work to an individual’s particular strengths and interests, and barriers are actively removed, as the following example demonstrates:

“At the start of the session, K emerged in the doorway and stood in the room. She smiled when I spoke to her and seemed to want to stay, but didn’t move from the doorway. The TA turned up and I suggested that we could turn a desk around in the corner for K to work on. The TA said she would sit and work with her on the house. When she suggested this, K came to sit down, however, after around 10 minutes, she went back to the corridor, but took the house to continue working on it outside.

The TA helped me understand that K didn’t want to work with paint or anything wet, so I suggested that she could cut out pieces of felt and stick them onto the house. K nodded in agreement. The teacher explained that K liked pink, and when asked if she would like some pink felt, she nodded... the teacher sat outside and helped her to cut the pieces out... K worked for most of the double lesson and managed to cut a number of pieces out neatly and stick them on. I gave her lots of praise at the end and thanked her for having a go. I said that I would keep her work safe and that she could continue working on it next week. She nodded at this.”

Here, K tried to enter the classroom space for the first time. Initially, the TA and I attempted to make the 'least restrictive conditions' by moving a desk so that K could remain in the room and be supported throughout. K still found the classroom environment too loud and chaotic, but was encouraged to take the task out into the corridor to continue working on it. Here, K experiences autonomy by having the freedom to go back outside, relatedness through the continued practical and communicative support of the TA, and competence through producing a well-designed and constructed piece of work, and is subsequently able to maintain her motivation to engage throughout the session.

'Positive niche construction' (Armstrong, 2012) can also be used as a pedagogical device, where students are assigned specific roles or tasks that closely align with their individual interests or skills. During the filming and green-screening sessions, student co-researchers assumed individual roles with clearly specified outcomes, and the demands of the task were sufficiently varied that everyone could find something they felt comfortable with. Having a clearly defined role fulfilled some of the co-researcher's need for clarity and structure, and allowed students to take greater control of their own learning. Student co-researchers were observed to effectively negotiate tasks as they arose, as well as improvising and making creative decisions throughout, as the following observation shows:

"Filming A's outside broadcast was the most successful part of the lesson, as everyone apart from L got actively involved, and everyone was in a fairly good mood, doing their assigned jobs and working together. They all responded to their cues, were focused on the task and did things on time.

R and J helped to put the greenscreen up, to fix the reflector under the ceiling tiles and to set up two flood lights. R set up a camera angle and J pressed record and pause on a number of takes. When it came to throwing snowballs, R and J set up some chairs, gathered the snow powder and the snowballs and took their places ready for filming. They worked on around 3 takes of the scene.

A was today's outside broadcaster...We painted his face and J and R stood on either side of him with snow ready to throw. M and I held up the white sheet to make A look

like he was being buried in a snow drift. N operated the camera and also threw some snowballs. O later took over from M in holding the sheet. We did three takes where I introduced A, and he improvised about a sleigh being lost in the air and about the weather getting worse and worse, while people threw snow at him. He eventually became 'buried' under a snow drift."

These learning conditions also created opportunities for students to experience autonomy, competence and relatedness (Deci and Ryan, 2000), as each managed their own area (autonomy), engaging in tasks that they felt confident with (competence), where individual roles contributed meaningfully to the wider project (relatedness). This ensured students remained motivated and engaged throughout. It became clear that working within clearly defined parameters increased confidence and enabled students to take risks, ultimately taking control of their own learning.

Sometimes, however, the fulfillment of psychological needs can create conflict. In the following observation, J's primary motivation was to work with R. However, R valued autonomy and competence above relatedness when focused on a task, generally preferring to work alone. When fully engaged, R found others an unwelcome distraction:

"R and J set to work on making the plane. They didn't like the barrel shape I had provided and R decided he wanted to make a 2D plane... It became clear that this wasn't a two-man job, so I gave J some clay and said that we needed a screaming pilot in the cockpit, as the plane was going down. I later noticed that he was just squidging the clay around and not really making anything, so I suggested that he make some flames... coming out of the plane's engines. He seemed much happier with this task and set to work."

R spent most of the lesson cutting out wings and a body for the plane. He did a really neat job... [he] got bored and distracted around 11.05, and started messing around, so I suggested a break at that point, which seemed to bring everyone back on track."

Once R had taken charge of the model plane, the fluid nature of the creative task presented an opportunity for J to make a pilot out of clay, thereby still working alongside R, but on another element. However, J became quickly demotivated due to a lack confidence in his making skills. Once R had finished, he also quickly became distracted. A break was then called. This exemplifies how creative practice facilitates 'crip time' (Kafer, 2013), where tasks can be shortened, paused or adapted in response to the needs of a diverse group of students. Here, co-constructing an optimal learning space involved close observation of student responses to create favourable conditions for self-regulation.

Initially, R was optimally challenged and deeply focused on the task at hand. J, however, experienced the open-ended nature of the task as overly challenging. This led to anxiety, overwhelm, and eventual disengagement. Once R had finished making the plane, he also became bored and disengaged. The pedagogical demand here was to find something new to engage R and J at the appropriate level. For J, the task needed not to be too ambiguous or require a high level of creative thinking skills, as this is where he became overwhelmed and anxious. In subsequent sessions, a creative construction task was identified that worked effectively to R and J's differing level of skill, and allowed them to work alongside one another on similar but distinct elements.

Question 3. How can creative practice facilitate pedagogical conditions supportive of neurodivergence, in addition to promoting personal and social development, improved communication and collaboration between students?

Creative practice offers teachers/facilitators freedom to act as both 'guide on the side' and 'meddler in the middle' (McWilliam, 2008), creating spaces for experimentation, and opportunities to model perseverance as an essential part of exploratory learning. In the following observation, both N and I experienced failure, which was embraced and valued without being taken personally or as a reflection of individual worth.

"N arrived looking tired and sleepy. She found an emerald green gel that she wanted to stick to the end of the metal plant pot...She cut it out but couldn't make it stick... When I tried to do it, I realised [the task] was actually quite difficult because the gel

wasn't pliable and kept snapping away from the pot. I eventually managed it, but apologised, because I hadn't realised [the task] was so hard!

N then tried to stretch some black foam around the lamp, but couldn't make it fit because of the conical shape, and was getting frustrated through repeated attempts. I showed her how to cut it to size, and returned later to find that she had cut it to make a perfect fit around the pot.

I suggested she could cover the seams. She said, excitedly 'with a different colour!' I suggested 'maybe you could do lightning bolts?'...After I'd drawn the first bolt, she said 'I need tracing paper'. I asked why. She explained 'so that I can copy it and draw a second one.' I said 'just cut that one out and draw round it', she laughed 'oh yeah!'"

Struggling and failing *together* is significant here, as it establishes failure as part of a *shared* learning experience, rather than an aspect of the individual learner. In this instance, the co-produced learning was that providing genuine support requires the facilitator to actively partake in problem-solving *alongside* their student, to experience success and failure together, and to model positive responses to both.

Providing the right level of support also requires students being open and honest in communicating their needs, facilitators interpreting those needs correctly, and offering an appropriate response. When N asked for help, she was offered potential solutions, but was also left to attempt those solutions on her own initially. As a result, N's personal development became apparent, moving cyclically through the creative process from reluctance to try, attempting but being frustrated, to finally experiencing success and feeling confident to offer her own solutions to problems. In accordance with Amabile's (1996) revised componential theory of creativity, providing a supportive learning environment meant that N's motivation to engage was not diminished when she experienced failure, but remained high until success was finally achieved. In this way, both divergent and convergent thinking skills are able to develop.

Trust and mutual respect supported N's development of autonomy and competence throughout the exchange. Trust was essential for students to be vulnerable, to acknowledge 'not-knowing' and to ask for help. The facilitator must also trust that the student has the capacity to succeed, providing only as much help as is required. The learning co-produced during this encounter emerged from a relationship of trust and mutual respect, where the student co-researcher allowed herself to be vulnerable, and the facilitator maintained a safe space by assuming responsibility for failure. Brown and Leb (2025) discuss the importance of failing together as a pedagogical approach that disrupts traditional hierarchies of power, and re-frames learning as an open-ended and iterative process. The authors describe how a pedagogy of failure can only be effective under conditions of mutual trust and shared vulnerability, where failure does not carry a disproportionate risk for the student.

The facilitator then experienced failure alongside N, and modelled an appropriate response, which empowered N to persevere and eventually succeed. Creative practice provided opportunities for 'meddling in the middle' and acting as 'guide on the side' by maintaining a focus on the task at hand, allowing the pedagogical relationship to develop according to the changing needs of the student. The facilitator has the opportunity to respond to the student co-researcher's vulnerability in different ways, as she cycled through trying but failing, feeling frustrated but persevering, to eventual success.



Images – student co-researchers rigging booms and theatre lights in the classroom (above)

As well as exercising fluidity with respect to pedagogical strategies, teachers/facilitators engaging with creative practice can also adapt lesson plans in response to the changing and developing needs of their students. Atkinson (2022) refers to this as ‘speculative pedagogy’ which he defines as:

more reactive, responsive, generative or improvisational in relation to how something in a learning encounter matters for a learner and how the potentialities of such mattering can be developed (Atkinson, 2022, p.750).

In session 4, M was notably more eager to engage than in previous weeks. I responded by giving him time and space to explore his ideas fully. As a consequence, this was the first session where M took creative initiative and produced original ideas. Adapting the original lesson plan was possible because of the ‘capaciousness’ introduced by creative practice (Bragg and Manchester, 2011). Open exploration requires a fluid approach to time compared with working towards predetermined learning outcomes. In response, M demonstrated all three components of Amabile’s (2013) componential theory of creativity, (motivation, technical expertise and creative thinking skills). He engaged with practical considerations, such as use of suitable building materials and appropriate dimensions, and used his own previous knowledge to develop creative solutions to practical problems, as this observation demonstrates:

“There were only a few students in today... Having fewer students created a much calmer atmosphere where some students engaged and communicated more than usual.

M...was excited to start drawing his ideas for a Christmas Village, and when he couldn’t work out how to draw something from a bird’s eye view, he started using symbols, like ‘T’ for tree and ‘H’ for house... For the whole lesson, M was coming up with good ideas for the piece [problem setting and problem solving throughout], and didn’t seem to notice the time pass, commenting ‘wow, is that the time already?’ at the end.

M's ability to stay motivated resulted from having the autonomy to follow his creative ideas, feeling competent to develop viable solutions to problems, and being able to discuss those ideas with an interested adult. An effective pedagogical relationship was co-constructed, and progressed from M asking questions and being encouraged to consider possible solutions, to M answering questions to problems that he has set for himself. M's increasing experience of competence and autonomy was supported throughout as I transitioned between 'meddling in the middle' and 'guide on the side' (McWilliam, 2008). Consequently, motivation and engagement were maintained, resulting in a personally meaningful learning experience for M.

This translated into personal development, where M was observed to take charge of this aspect of the project and effectively manage and support the contributions of his peers. M assumed a more active role in co-creating the learning environment during the subsequent session. He had good design ideas and was generous in welcoming contributions from others whilst still allowing them to do things their own way. This is an example of 'conviviality' in learning as discussed by Atkinson (2022, p.83), 'where no one's capabilities or potentials are placed above those of others'. M demonstrated an awareness that, although it was his idea originally, everyone's contributions were equally valued. He used his vision supportively to provide focus and direction to other students, but without stifling their individual creativity, as this observation demonstrates:

"M really took charge of the Winter Wonderland project today. He has been really enthusiastic to see his creation come to life, and he is also quite generous and open about letting other people put their own ideas forward and do things in their own way... There was some debate between M and H about where the skating rink should go, and if there should be a river, at which point M drew a picture of the shape that he thought the skating rink should be, and H got to work on it.

H seemed at a bit of a loss... as he didn't have a specific role... He started cutting and sticking fake snow, then moved onto the gingerbread houses, but every time someone else joined in, he asked if he should be doing something else instead. He was looking to make himself useful at all times, but found the lack of clear

responsibilities challenging. Once M gave a clear steer on the skating rink, H set to work on selecting materials (felt and cellophane) to achieve a good effect... I asked him if he would like to be one of the news readers next week. I explained that he would just have to read out what was written down, and he said yes. He seemed quite happy at the prospect of having a clear role assigned to him. As Mr. S explained, he will feel more supported if we put him with O.”

During this session, H experienced the lack of clarity as daunting and sometimes overwhelming. However, when allocated a task against which he could evaluate his own performance, H demonstrated creative thinking skills and technical expertise. M understood that if he provided H with a size and shape for the skating rink, as well as some design suggestions, H would be able to create the desired effect. This is an example of ‘positive niche construction’ (Armstrong, 2012), where M established the least restrictive environment for H by providing clear guidance to manage his anxiety, but maintaining H’s freedom to choose materials. Here, students co-constructed effective learning environments by identifying one another’s needs, and adjusted the task parameters accordingly to remove individual barriers to learning. This demonstrated care, reflexivity and responsiveness within an environment of peer support.



Images – Winter Wonderland model (left), student co-researcher with their elf puppet (right)

There were further examples of student co-researchers working effectively together, identifying and meeting one another's learning needs, but without clearly defined roles as with M's Winter Wonderland. In these scenarios, a continuous and reciprocal negotiation was required to identify the most effective ways of working together to reach a mutually beneficial result, as the following observation shows:

"H and O were enthusiastic and in good spirits this session... They were very impressed with M and N's piece from the week before, and listening to this inspired and motivated them to create something new themselves, but also made it seem like an achievable goal.

They fell into a natural rhythm and roles, with O 'performing' and H facilitating O's creation... H struggles with too much choice and prefers to be given clear instructions to follow. With clearly defined tasks [and encouragement where necessary], H was able to self-evaluate his own work, and this gave him confidence and a sense of achievement.

Mr S noted that O... initially took charge with her idea, but once she realised that H hadn't [contributed], she made a point of it being his turn next and that he should decide what beats underscored the track. In the end, what they produced was well thought out, funny, and effective. O was clearly very proud and was telling people about it in the corridor afterwards. H also seemed quietly happy with what he had achieved."

This demonstrates a 'convivial' education space where 'the potentials of each learner are subject to a rigour of taking care and support, where no one's capabilities or potentials are placed above those of others' (Atkinson, 2022, p.83). Although H and O had very distinct personalities, they chose to work together to make a piece of music. The nature of the task allowed each to work to their strengths, with O performing, and H working with the software.

A 'pedagogy of taking care' was co-constructed between Mr S and the student co-researchers, as Mr S observed H's need for clarity and provided reassurance to give H the confidence to try something new. As his confidence developed, H demonstrated autonomy and creative thinking skills. Mr S responded by encouraging him to anticipate the next move as his competence increased. Finally, Mr S followed H's direction once he felt confident enough to take the lead. This enabled H to experience full mastery of a creative skill, moving from being supported, to fully self-directed.

Mr S also supported the working relationship between H and O, observing that O was much more outgoing than H, but that this was mediated by empathy towards H. This meant that, rather than stifling H's creative development, O was supportive and naturally transitioned from taking charge, to offering H more creative freedom as his confidence developed. Mr S monitored the situation closely, but observing the development of a mutually supportive relationship, allowed it to unfold.

With relation to pedagogies of taking care, Atkinson explains:

Social relations and their evolution are dependent upon valuing difference while at the same time trying to forge collective values and practices; the... challenge, therefore, is to value ethical differentiation whilst also constructing collective participation (Atkinson, 2022, p.20).

The excerpt above is an example of such a pedagogical approach, as Mr S identified differences in personality and learning needs, so remained vigilant to ensure the interaction between student co-researchers was positive, productive and successful. 'Speculative pragmatism' here meant facilitating effective collaboration between student co-researchers such that their individual differences promoted rather than hindered one another's learning.

It was not just working in pairs that student co-researchers demonstrated 'conviviality' and consideration for one another's learning. As the weeks progressed, there was a notable change in R's behaviour - in each session, R's focus lapsed at around 11.15. In the first week, R played ball games with J inside the classroom, which was very distracting for everyone. In

the second week, R went for a walk around the garden. From that point on, R removed himself from the room whenever he needed a break, but would always come back and re-engage when he was ready. By sessions 7 and 8, however:

R started to drift off around the room at 11.15... I let him do this for a while because he wasn't being disruptive but was looking at what everyone else was doing, asking helpful questions, and seemed to be self-regulating in a constructive way.

R's change in behaviour over the study appeared to be a 'convivial' response to his need to roam around, actively co-creating an effective learning space by taking account the needs of others in addition to his own. This change in behaviour arose once R had experienced his own needs being acknowledged and respected, as this comment to another student during the session suggests:

R: Mr X doesn't understand me. He's always having a go at me for being disruptive... It's not like that in here... they get what I like and what I'm good at. They know what I can do.

As a result of being 'seen' as both capable and valued, R reciprocated by offering to help his classmates in a convivial form of self-regulation. Again, the nature of creative practice – in this case, a whole-class practical making activity, lent itself to R providing mutual support without causing disruption to others.

There was also a notable change in J's behaviour. In previous weeks, J followed R's lead, becoming distracted when R was distracted. However, J remained engaged in the task for the entire session here, demonstrating increased intrinsic motivation, potentially as a result of positive niche construction (Armstrong, 2012), where he was provided with a task at an appropriate level of challenge – neither too difficult to result in anxiety, nor too simple to result in boredom and disengagement (Nakamura and Csikszentmihalyi, 2005).

The personal and social development of students continued into the subsequent session where they were required to film a few short scenes for the final performance. In this session, students were allocated specific roles according to their own preferences, and

improvements in communication and collaboration between student co-researchers was evident, as they took charge of their own learning as a group. Although R and J remained together throughout the session, they transitioned smoothly from role to role as required. This was the first time they had actively participated in group work, making independent decisions about when to start filming and how to set up a scene. This exemplifies what Hall and Thompson (2007) call 'third spaces' of learning, where traditional roles of student and teacher become permeable and fluid, allowing students to take charge and make decisions, not just for themselves, but for the group as a whole. The teachers/facilitators relinquished control here, but ensured that the space was still 'held', which meant observing carefully, but also making suggestions, providing encouragement and keeping momentum through input and guidance where necessary. In this way, students surpassed their co-creative role to become choreographers of their own learning experience.

Creating 'third spaces' of learning means disrupting the status quo in classrooms to make way for new possibilities of action to emerge. Where those rules were unwittingly re-introduced, such as my attempt to initiate a class discussion about neurodiversity at the start of session 3, the effect was jarring for all concerned. The student co-researchers were consulted on the content and form of the session at the beginning, and the session was quickly revised to meet the needs and preferences of the student co-researchers.

This demonstrates how our educational space was negotiated and co-produced by student co-researchers throughout, resulting in moments of learning and discovery for all involved. As facilitator, I made learning proposals to the group, and student co-researchers could choose or reject different options. In this case, a suggestion intended to open up a space for discussion had the opposite effect, where some students felt that labels and/or perspectives were being imposed on them. It became quickly apparent, as a point of learning for myself as facilitator, that openness or 'capaciousness' (Bragg and Manchester, 2011) in educational spaces, is not about foregrounding or highlighting difference, even from an affirmational standpoint. It is about facilitating opportunities for freedom of expression that are *student-led*.

Designating how someone should understand themselves wholly undermines this project. The role of the teacher/facilitator here was to protect a space of openness by making decisions to safeguard individual and group welfare. As Atkinson explains, this 'is grounded in an open and unpredictable valuing of difference and potential (horizontal and divergent) in relation to collective values and responsibilities' (Atkinson, 2022, p.21). In open discussion with the students, it became apparent that valuing neurodiversity meant creating space for student-led discussion, where they could retain power and autonomy over their own identity.

The student co-researcher who most successfully established a 'third space' of learning (Hall and Thompson, 2007) was K. Choosing to work in the doorway/corridor gave K the chance to take control of her own environment. The corridor was less noisy and chaotic, and access to or separation from the group could be carefully choreographed; from the corridor, K could either watch and observe from a safe distance, enter the room if she chose, or take materials to engage with the task outside. Both the TA and I helped to maintain this liminal space; I went to check on K's progress during sessions, offering encouragement and feedback, but also making suggestions to ensure that K remained engaged. The TA focused on K's well-being, voicing K's concerns and facilitating decision-making by interpreting her non-verbal signals. The TA was a key component in K's ability to navigate this 'third space', and became increasingly present as sessions progressed. The key point of learning here was that given the freedom to choose, student co-researchers will establish their own accessible learning environments, but teachers/facilitators must actively engage with, and help to maintain those environments to ensure that they are successful and protected.

Session 9

Making the Sleigh



Images – student co-researchers cutting out and painting Santa’s Sleigh at Liverpool Scenic Workshops (above).



Images – students completing the Winter Wonderland for the final performance (left) and Santa reunited with his sleigh (right).

4.4. Part 3 - Data Analysis of Semi-Structured Interviews

Interview Questions

As a final stage in the research process, the student co-researchers were asked:

1. What was your experience of your previous school(s) before attending ACE.
2. What do you like/dislike about ACE compared to your previous schools?
3. What has been your experience of the creative Enrichment sessions that you have taken part in?
4. What are your hopes for the future when you leave ACE?

The rationale for these interviews was that this research could only have taken place in an educational environment with the degree of flexibility that ACE provided - an environment that foregrounded the importance of student mental health and well-being as well as their individual learning experiences. Within a mainstream school, this research would have been difficult or impossible to conduct due to lack of flexibility, time and curricular constraints. However, all of these students had previous experience of mainstream schooling, so it felt important to understand how ACE was *already* providing an accessible educational environment to these students as a baseline measure, to identify and foreground the particular contribution of engaging with creative practice.

In terms of the student co-researcher responses, most were able and willing to talk at length about their previous experiences of mainstream school compared to ACE, but became self-conscious and embarrassed when asked about their participation in the Enrichment sessions/research process. This may have been because it felt like a leading question, or because it was the researcher asking this question, who had a clearly vested interest in their responses. For this reason, the matter was not pushed to elicit a fuller response from the students. However, all students responded positively to question 3, saying that it was 'good,' they had 'enjoyed it' and one student co-researcher claimed 'this is the best part of my week.' However, question 3 was omitted from data analysis due to the overall brevity of the student responses.

Group Experiential Themes relating to Education	
ACE	Mainstream School
1. The Physical Environment	
a. Navigating spaces “I do prefer it if we stay in one class, but since all the classes are like two seconds away from each other here, it’s pretty easy to walk between them all... and the bathroom’s always in the middle, so it’s dead easy to get to it” - A	“In my last school, you literally had to go from one building to the next... it was still dead difficult... for the most part, I just followed my class, but if I needed to go to the bathroom or anything, and they went, then I’d be completely lost. I wouldn’t be able to find them” – A “it was fairly hard to navigate around” – R
b. Class sizes “smaller classes do help” – A “it’s less crowded” – M	“in my first school, there was like 30 kids per class, which was definitely too compact” – A “I didn’t like how many people were in the classes” – R
c. Noise “it’s a more comfortable, calm environment” – C	“I wore ear defenders there... I had to bring those” – H “there was like a lot of people. And it was loud sometimes” – R
2. Relationships with Teachers	
a. Being treated as an individual “they treat each student like they’re an <i>individual person</i> ... they treat us more like <i>individual kids</i> ” – A	“they treat [you] like a flock or something, just like a <i>group</i> that someone has to deal with” – A

“it’s better ‘coz there’s more of a relationship with the teachers, and they try to cater the learning to each individual kid” – C	“they didn’t really cater to the individual kids, and how <i>they</i> learnt. It was just kind of teach everyone the same thing and hope for the best” – C
b. Being listened to (openness) “most of the teachers are fine with having like a detailed conversation... they’re down to talk if you need help with a question, or completely something unrelated” – A “If you’ve got an issue about something... you can have a chat with one of your teachers, which I don’t think I could do in mainstream” – C	
c. Feeling supported “it’s better than others... more support in the classes” – M “they know you more on a personal level and they treat you more as an equal instead of ‘I’m a teacher, you’re a kid, you have to listen to me,’ in that kind of a way” – C “the teachers understand you more... they’re just more understanding” – H	“the staff didn’t help enough and I was overwhelmed” – H “there was low staff...there was no real, like, supervision and stuff” – A “it was more about getting good marks...they didn’t really focus on the well-being of the kids as much” – C

There were six Group Experiential Themes that emerged from the interview data, which fell into two broader categories of:

1. The Physical Environment

- Navigating spaces
- Class sizes
- Noise

2. Relationships with Teachers

- Being treated as an individual
- Being listened to (openness)
- Feeling supported.

All interviewees experienced ACE more positively than mainstream school. In terms of the physical environment, students explained that ACE is more compact and easier to navigate, class sizes are smaller and it is generally less noisy. The relationships with teachers at ACE were experienced as more meaningful and satisfying, where students felt they are treated as individuals, teachers take time to listen to their concerns and are open to conversation, and that both of these experiences contributed to a general feeling of being supported.

Overall, there was very little reference to academic concerns or the experience of learning itself. Only one student referred to the lack of academic choice at ACE compared to mainstream school, with fewer subjects being taught, but even this did not override their impression that ACE was a better place to be. In addition, students referenced their relationships with fellow students very little compared to the impact that their relationship with teachers had on their educational experience.

The two broader categories of 'physical environment' and 'relationship with teachers' also had different affective and emotional components when compared with one another. The physical environment was more closely related to students' sensory needs, and in mainstream school, students frequently felt lost, overwhelmed and anxious. In contrast, at ACE the physical environment was experienced as safe and calm. The main impact of this on students was an overall reduction in anxiety and stress.

In regard to students' relationships with teachers, however, feeling insignificant, misunderstood or not fitting in at mainstream school were recurrent themes. In comparison, students felt valued for their individuality at ACE, in addition to feeling 'seen' and understood. The main impact of student-teacher relationships at ACE, therefore, was one of self-affirmation. In addition, teachers appeared to have a much greater influence than peers in this regard.

One student made the connection between *both* the physical environment *and* relationships with teachers, stating that this directly affected how well students interacted with one another and student behaviour in general:

C – ‘It’s a more comfortable, calm environment. There’s a lot less behaviour problems in some ways, kids being mean to each other... there’s less of that because it’s just kind of more relaxing. If you’ve got an issue about something, instead of taking that out on someone else, which happens a lot in mainstream, you can have a chat with one of your teachers, which I don’t think I could do in mainstream’

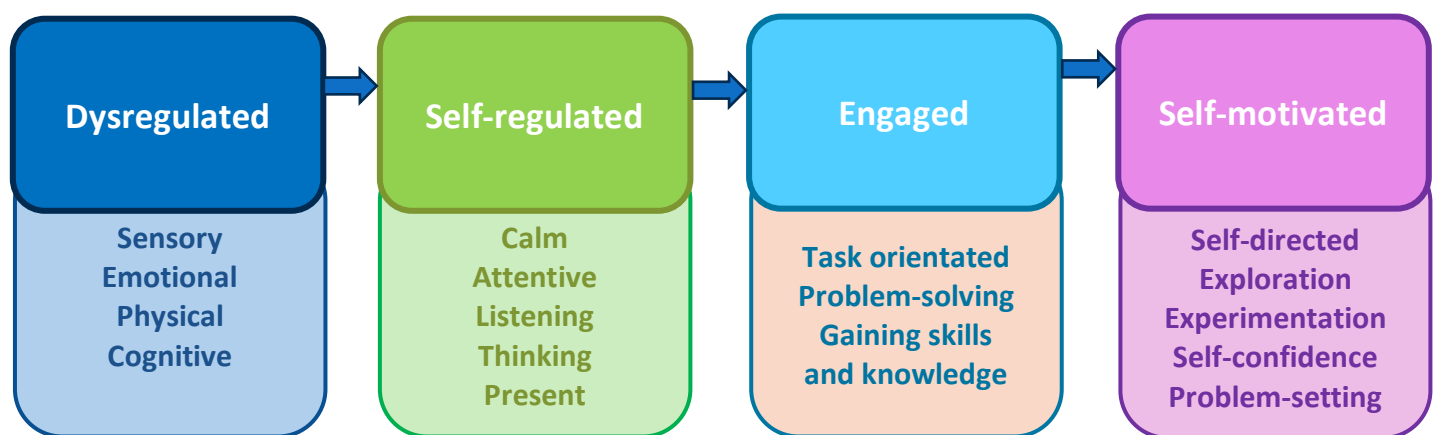
These interviews revealed how different aspects of the school environment work together to contribute to students’ overall well-being and their ability to learn. Minimizing stress, and developing positive, self-affirming relationships with teachers was found to contribute to effective learning environments for those interviewed. Once at ACE, mental health and well-being was self-reported to be noticeably improved by students, staff, parents and clinicians alike.

These findings demonstrate how the principals and values of ACE aligned closely with the values and underlying assumptions of this research project. Within the research process, student anxiety and stress was minimised further by creating choice for students in terms of how to participate, and control over the form and content of sessions. Positive relationships between facilitators and student co-researchers were established and maintained through getting to know the students before the research process began, focusing on individual needs when offering support, and designing session content around student co-researchers’ individual strengths and interests. If the educational values and principals of ACE and the research process were not so closely aligned, it is anticipated that the research outcomes would have been less apparent and more difficult to achieve.

5. Discussion

The interview data clearly demonstrates the relationship between the physical environment, students' social-emotional well-being and their ability to learn. For the neurodivergent student co-researchers in this study, effective learning could only take place in an environment such as ACE, where they had opportunities to self-regulate, and where they felt safe, valued and respected by those around them. This describes the necessary pre-conditions for an effective learning environment for neurodivergent students. During the 4 cycles of CPAR, however, student co-researchers were observed to progress beyond self-regulation to become fully engaged and eventually self-motivated learners. This suggests that engaging with creative practice was able to transform the student co-researcher's relationship to learning. This process is represented in the figure below:

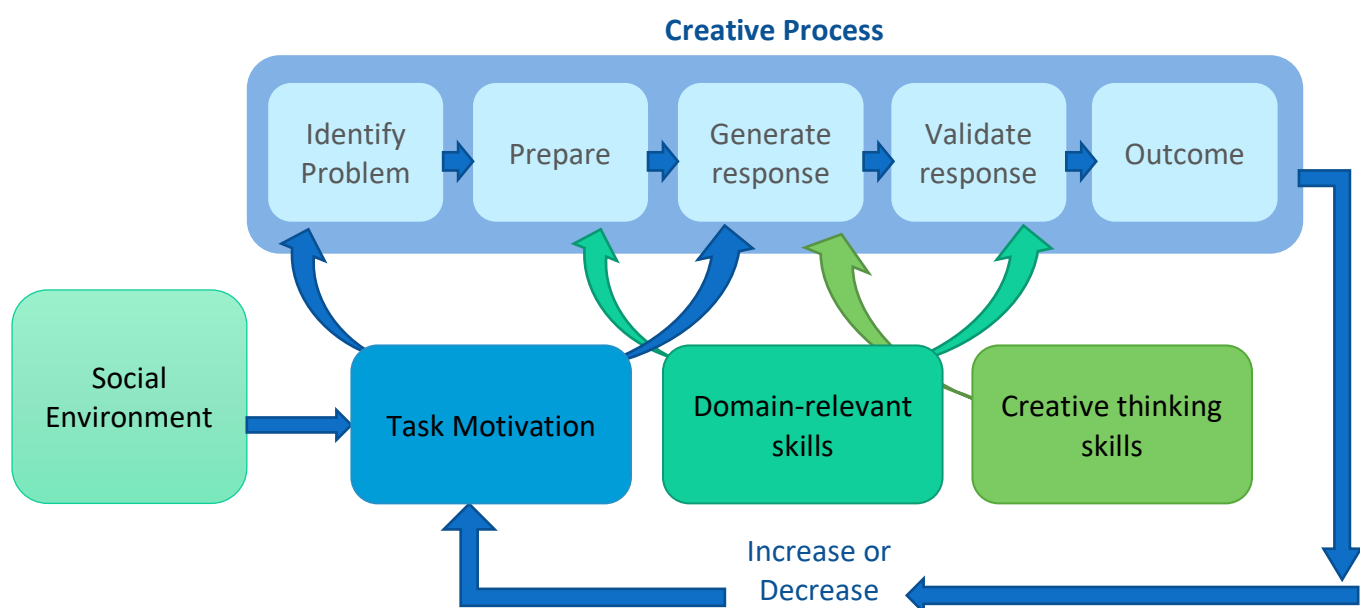
Fig. 6. A neuro-inclusive model of learning progression within an effective educational environment.



The stages described broadly follow the 'four zones of development' proposed by Grandin and Moore (2021, p.237), specifically in relation to autistic young people (fear, comfort, learning and growth), but have been developed here to describe the experience of *all* neurodivergent young people within educational environments. The four stages (dysregulated, self-regulated, engaged and self-motivated) provide a visual representation of the different states experienced by the student co-researchers throughout this study. At the start of each session, the student co-researchers might arrive in any one of these states,

but within a supportive learning environment, they were able to transition towards engagement and eventually self-motivated learning. This discussion provides a detailed reflection on the findings from data collection and analysis to consider what an effective learning environment can contribute at each stage to enable students to make positive progress with respect to their learning, and how this is facilitated through creative practice.

Given that this first process describes the students' personal development *as learners*, transitioning from disengagement to self-motivation, a second process is required to describe what *kind* of learning took place i.e. the changes that took place in students as they gained in knowledge, skills and experience through their engagement with creative practice. This is best exemplified by Amabile's (1996) revised Componential Theory of Creativity, where creative thinking skills (problem-solving) and technical expertise increase incrementally as students progressed through each cycle of the creative process. This progression was evidenced in the outcomes of each cycle of CPAR; initially, students needed to feel safe and build their confidence with creative practice, but as they experienced success, they needed more choice and freedom to make their own decisions, eventually taking the lead with respect to their own learning, requiring the facilitators to adopt a more supportive role.



In the earlier cycles of CPAR, students' learning experiences were scaffolded, such that choices were initially relatively limited and outcomes were somewhat pre-defined, with facilitator support readily available. This afforded students the necessary opportunity to become familiar and proficient in the use of divergent and convergent thinking skills (Isaksen and Treffinger, 1985; Treffinger, 1995) that they could apply to more open creative tasks later on. For example, in week one, the steps required to build and wire a lamp were pre-defined, but student co-researchers were able to experiment with different design elements and refine those choices according to aesthetic and practical concerns. In later weeks, student co-researchers had much more choice and flexibility in choosing what to do and how to do it, and successful outcomes were not always assured. The reason tasks were structured in this way, from greater pre-determination towards increased choice and creative freedom, was that task motivation, domain-relevant skills and divergent and convergent creative thinking skills need time and opportunity to develop, as well as the students' confidence to exercise them in relation to new problems.

Traditional transmissive pedagogies tend to focus only on the acquisition of knowledge and skills, whilst neglecting the development of creative problem-solving skills and the motivation to engage, which are assumed to be pre-existing within the student. However, within an effective educational environment, creative practice attends to all 3 of these forms of learning, as well as the student's personal development as a learner (described above), providing them with everything they need at each stage in the process. With reference to relevant literature and the findings of this study, this discussion will explore how these processes are facilitated through creative practice.

5.1 How creative practice moves beyond the tenets of 'crip' theory to facilitate accessible learning for all

In the Introduction, some of the challenges experienced by neurodivergent young people attempting to access mainstream education were identified. One major issue was that neurodivergent young people think and learn differently from their neurotypical peers. Consequently, neurodivergent students are systematically disadvantaged within mainstream education, within a system built on normative expectations and competitive

individualistic practices. This means that neurodivergent students are more frequently positioned as 'failures' within these environments.

This study found that creative practice has the potential to 'crip' educational environments to make them more accessible to neurodivergent students. Crip theory describes accessible learning environments in terms of *fluidity* of practices and processes (Abrams, Floyd and Abes, 2024), *interdependence*, (Liddiard et al., 2022), and '*crip time*' (Kafer, 2013). Analysis of the data demonstrated that it was not only possible to embody these principles, but move beyond them in some significant ways.

Firstly, more than just *fluidity*, creative practice presented opportunities for freedom of choice, movement and participation. Student co-researchers could choose which aspects of a larger task to engage with, whilst still gaining all of the same knowledge and skills as the rest of the group. Similarly, tasks were adapted to create an appropriate level of challenge corresponding to a student's current level of skill. This meant that boredom and anxiety could be managed and generally avoided, helping to maintain focus and engagement throughout. Students also had the freedom to physically move throughout the space, allowing opportunities for self-regulation and sustained participation in tasks. Finally, freedom of participation meant that students could watch and observe from a distance, participating in, or designing their own tasks - in some cases making creative contributions to the work of others. Increasing freedom of choice, movement and participation meant that access to learning was improved for all, and the potential for exclusion was reduced.

Opportunities for collaborative working led students to demonstrate more empathic and mutually supportive behaviours. They developed an awareness of each other's needs, and tried to meet those needs by adapting tasks, providing support and feedback, and occasionally adopting a facilitative role by taking the lead at different points. Through feeling supported, students also became increasingly willing to persevere with challenges, in some cases, setting challenges for themselves and taking ownership over their own learning. Within their interviews, student co-researchers cited being treated as an individual, being listened to and feeling supported by teachers as key to creating a positive learning environment at ACE, but relationships with peers were not referenced. Within the 4 cycles

of CPAR, however, student co-researchers had the opportunity to develop close interdependent working relationships with their peers, and demonstrated how this mutual support significantly strengthened their personal development and autonomy as learners, perhaps even more so than support received from facilitators. This highlights the multiple benefits of collaborative and group working over more competitive and individualistic forms of learning, which are characteristic of neoliberal educational practices.

The mutual support and respect that student co-researchers demonstrated towards one another developed within an atmosphere of openness and acceptance where freedom of thought and expression were encouraged. This is a further example of how creative practice and crip theory align, as both require direct engagement with the unknown, in order for new possibilities and practices to emerge. To engage with the unknown, the student co-researchers needed to feel safe and free from judgement, as well as having the confidence to try new things. This meant establishing and maintaining protected spaces so that curricular cripistemologies could emerge.

Protected spaces, in this context, refer to spaces where students' value and self-worth was not conditional upon successful outcomes or achievements. The creative process requires risk taking and failure, but failure as a part of practice became distinguished from *personal* failure. In cycles 1 and 2, this needed to be made explicit to students, as they were invited to witness facilitators try, fail, persevere and eventually succeed. Once it became clear that there was no shame or judgement attached to failure, the student co-researchers became increasingly confident, competent and eventually experienced successful outcomes. This in turn increased their willingness to engage. In both creative practice and the development of curricular cripistemologies, a person's value is inherent, non-conditional, and every person is seen as having something unique and valuable to offer. This requires a universal perspective on creative potential, as something available to all.

Despite the universality of creative potential, individualised creative approaches emerged during the cycles of CPAR. Some students preferred clearly defined tasks and limited choices. This gave them the confidence to engage and take risks within set parameters. Other students needed open-ended tasks to explore their creative freedom and to become

personally invested in the project. These two approaches reflected the different predispositions of students, but also created a tension for facilitators between supporting student autonomy and providing structure and clarity in tasks that had to be negotiated throughout.

Students such as H felt more comfortable when exercising and expanding their technical expertise – being given a problem but having the freedom to decide *how* to reach a solution. Other students, such as A and M, were more confident in exercising their creative thinking skills, particularly divergent thinking, in terms of deciding *what* to do and generating new and novel responses to problems, but sometimes needed support with convergent thinking, selecting the most appropriate responses and following the practical steps of how to get there. This was an important distinction for facilitators to be aware of, to ensure that tasks could be allocated according to individual strengths and preferences. Student co-researchers also became aware of this distinction and gave one another the resources for different forms of creativity to flourish. When working collaboratively, this meant offering clearly defined roles to give students the confidence to take the lead in their own particular area.

Although learning spaces were successfully ‘crippled’ throughout the 4 phases of CPAR, there were also instances where the vulnerability of these spaces to external interference became apparent, such as with the arrival of the school inspector. In these instances, the facilitators could not protect the established values and practices within the space, and it became clear that these could only be safeguarded effectively at an institutional level. Because crippled spaces run ideologically counter to neoliberal cultural norms and practices, they are easily undermined by normative pressures that emerge and take precedence. As long as accessibility and inclusion for neurodivergent people is enacted only at a social and cultural level, spaces will always remain vulnerable to dominant neurotypical concerns.

During the course of the research process, it became apparent that co-creating ‘crippled’ spaces meant actively dismantling the neurotypical practices that underlie every aspect of daily life. As a neurotypical facilitator, this frequently meant engaging with not-knowing, to create a space where alternative perspectives could be confidently expressed. Neurotypical

privilege often remains undetected by those experiencing it, but it frequently manifests itself through an assumption that everyone experiences the world in a neurotypical way. Milton's 'Double Empathy Problem' (2012) reminds us that when it comes to neurodiverse subjective experience, there is no 'right' way to think or feel, there are just irreducible differences that cannot be overcome or fully understood, but must be acknowledged and respected by both sides.

Engaging with this process led to a number of personal learning points that have informed my professional practice, particularly in relation to the development of accessible learning environments. Firstly, it became evident during CPAR cycle 2 that it was possible to lead a session without taking *control*. This meant supporting student autonomy and empowerment through learning opportunities where students could discover things for themselves. Secondly, when students were given freedom of participation, they found solutions which helped them retain control whilst facilitating effective engagement. Finally, pedagogical creativity is important – finding novel solutions to the challenges that students encounter. It is important to try, fail and experiment as a pedagogue in the same way that student co-researchers are encouraged to try, fail and experiment within their own learning process.

5.2 How creative practice supports student autonomy, leading to increased engagement and motivation to learn

As explored in the Literature Review, intrinsic motivation is key to creative learning, and the environment is the greatest contributing factor towards increasing motivation (Amabile, 1996). Intrinsic motivation is fostered in autonomy supportive learning environments (Deci and Ryan, 2008), as demonstrated throughout the four cycles of CPAR. Evidence from within the data shows *how* creative practice supports student autonomy, leading to increased motivation and engagement in tasks.

Student co-researchers became increasingly autonomous throughout the research process by having the freedom to choose either *what* to do or *how* to do something, according to their individual learning preferences. Developing technical expertise proved to be a 'safer' route for some students, as they had a clear brief to follow. Students' learning was also

scaffolded to align with their individual competencies, making successful outcomes more likely. Successes were then built upon to increase the willingness to try and to take greater risks, leading to increased autonomy and positive learning outcomes. Students who felt comfortable taking risks and were enthusiastic to explore their own ideas, had an opportunity to engage with open-ended tasks, where they could decide *what* to do, and be supported appropriately to achieve their aims. This meant that every student, irrespective of their ability, could still experience autonomy and creative freedom, and risk was managed to ensure that self-confidence increased as they progressed.

Being able to manage risk was also key to increasing competence at each stage. Creative tasks were modified to give students an appropriate level of challenge, or alternative tasks were found that targeted the same basic skill set. One example was where J became self-conscious and uncertain when asked to make characters out of clay, but was highly motivated to finish the Modroc village. Both tasks provided him with the opportunity to gain competence with modelling materials, but the Modroc village required fewer creative thinking skills, so J was able to progress without feeling overwhelmed or anxious.

This 'positive niche construction' was an active rather than a passive process, requiring facilitators to focus attention on the strengths and preferences of individual students, to identify opportunities for action. At the beginning of the research process, this was mainly facilitator-led, but as the weeks progressed, student co-researchers were increasingly observed to construct positive 'niches' for one another. One example concerns two students co-creating a piece of music, where the more confident student initially took charge of the process, but upon realising this, began to create opportunities for their partner to contribute incrementally, eventually taking a back seat once their friend seemed sufficiently confident in their own abilities.

Support from both facilitators and peers was key to maintaining students' motivation. The physical layout of learning spaces, the social nature of creative practice and the tasks themselves meant that each session created opportunities for collaboration and the sharing of ideas. Because student co-researchers felt supported, they were able to collaborate more effectively with one another, providing constructive feedback and recognising individual

effort in overcoming challenges. This contrasts with neoliberal educational environments, where individual success is prioritized over collaboration, and 'support' is typically focused on improving performance, rather than on personal development, such as increasing self-confidence and motivation. Consequently, much of the benefit of mutual support and investment in one another's learning is lost in these environments.

Collaboration leads to more effective working practices and creates a learning community. Through creative practice, students experienced vulnerability when engaging with the unknown. This vulnerability engendered a sensitivity to one another's concerns, and a connection through shared experiences and empathy, which are values generally eroded within neoliberal institutions. As the sessions progressed, it became apparent that the social values dictated by creative practice (process over product, mutual support, respect and non-judgement) became internalized by student co-researchers, leading some to adopt a facilitative role to support the learning of others.

Intrinsic motivation and self-confidence increased as students acquired skills and experienced positive outcomes. This led to student co-researchers becoming increasingly self-directed, demonstrating problem-setting as well as problem-solving behaviours. Students demonstrated personal investment in tasks as the relevance of creative processes became apparent to them, and tasks naturally became longer and more complex as skills and expertise developed. As a consequence, student co-researchers required social and emotional support throughout the process in response to increasingly demanding tasks.

As a facilitator and creative professional, one of the key learning points here was the impact of students' social, emotional and psychological well-being upon their learning. Within the semi-structured interviews, students referenced the importance of being treated as an individual, being 'seen' and feeling listened to as making the greatest positive impact on their education. Within the 4 cycles of CPAR, feeling safe and building confidence were initially key to engaging with creative practice. However, as students' self-confidence, skills and competencies developed, freedom and autonomy became increasingly important. One thing that remained constant, however, was the need to feel supported, but the kind of support required developed alongside the students.

5.3 Alternative pedagogical approaches supported by creative practice

When a facilitator engages in learning alongside their students, as occurred in the early stages of the research process, they have the opportunity to model behaviours such as tolerance for uncertainty, risk taking, inquisitiveness and acceptance of failure as integral to creative learning. To produce 'autonomy supportive' environments (Deci and Ryan, 2000), however, educators must be able to transition freely between pedagogical styles such as 'meddler in the middle' and 'guide on the side' in response to the developing needs of the students, eventually stepping back and providing only as much support as required. This pedagogical fluidity afforded by the creative process enables students to gradually take control as they become increasingly competent and gain confidence in their own abilities.

Another important feature of pedagogical relationships within creative environments is that they are indirect, mediated by objects and materials processes. This indirectness fundamentally alters the pedagogical relationship, such that students become active participants in their own learning, taking ownership over their discoveries in a way that is more difficult to achieve through transmissive pedagogy alone. Through creative practice, failure becomes one aspect of the learning experience, rather than a defining element of the relationship between teacher and student. During this research process, both student co-researchers and facilitators learnt from one another through a process of action, observation and reflection. However, a distinction of roles and responsibilities still remained; the facilitator, as an adult in a position of authority, was responsible for protecting a non-judgemental learning space where individuality could be expressed, and needs freely communicated. This was sometimes challenging to achieve because of the competing requirements of different students.

When student co-researchers communicated their learning needs, the facilitator attempted to offer an appropriate response, attending simultaneously to the demands of the task, the individual and the group as a whole. This exemplifies a pedagogy of 'taking care' as described by Atkinson (2022). However, the cycle of communicating, listening and responding between student co-researchers and facilitators was complex and continuously evolving. It required the facilitator to be reflexive, to know when to take the lead, when to

offer support and when to step back, enabling the student co-researchers to take control. In addition, formulating an appropriate response sometimes entailed a degree of 'speculative pragmatism', with the facilitator suggesting alternative possibilities for action, accounting for emerging interests or needs. Like the student co-researchers, however, the facilitators sometimes made 'mistakes' by suggesting tasks or solutions that did not expediate students' progress, but by engaging with failure in the same way as the students were encouraged to do, satisfactory solutions could eventually be found.

Creative practice allowed for the development of pedagogies of taking care. Firstly, because creative tasks were sufficiently open-ended, there were multiple opportunities to respond to individual interests, such as offering R construction tasks because of his interest in engineering, and encouraging M to create his Winter Wonderland. Group projects such as these also produced multiple roles requiring different levels of autonomy to match the skills and confidence of each particular student. Creative practice was sufficiently flexible that tasks could be matched to interests, and the facilitator could adjust the support provided to ensure each student progressed and experienced success.

By experiencing pedagogies of taking care, student co-researchers developed mutual care and respect, or 'conviviality,' with regard to one another's learning experience. Students became invested in, and supported one another's engagement. Multiple examples of this concerned H, who lacked the confidence to take the lead in group situations, but other students were observed to pave the way for H to make a meaningful contribution to their shared work by taking a step back at the appropriate moment, or by providing sufficient clarity about what was required. This led to a notable increase in H's confidence and willingness to challenge himself as the weeks progressed. R also behaved with greater conviviality as session progressed, self-regulating in a way that was considerate to the needs of others, being helpful rather than disruptive to the group when he lost focus on a task.

Conviviality between student co-researchers also increased the 'capaciousness' of learning spaces, where hierarchical structures of power were disrupted to make way for different kinds of knowing and understanding the world (Bragg and Manchester, 2011). In these spaces, alternative possibilities we freely explored, and difference was valued.

Capaciousness was discovered to be a necessary precondition for creativity and ‘cripping’ educational spaces, as both require an opportunity to disrupt normative practices and to question what is already ‘known’.

During the research process, it became clear that student co-researchers and facilitators had very different roles with respect to capaciousness. The facilitators role was to establish and *protect* the space by making it clear that students had the power to choose, freedom to communicate, and that their thoughts and feelings mattered. In addition, facilitators established the values of mutual tolerance and respect, non-judgement and process over product. The student co-researchers role was to *inhabit* the space, through exercising freedom to choose in thought, speech and action.

Capaciousness is a relational quality, requiring changes in the social, cultural and material conditions of the learning environment (Kemmis and McTaggart, 2014). It gave students the freedom to self-regulate and take ownership over their own learning. Creating and maintaining a capacious learning space was therefore fundamental to all examples of co-production that occurred throughout the four phases of CPAR. The *criticality* of this working relationship to disrupt normative practices and processes became self-evident on the two occasions when capaciousness was threatened or undermined, leading to a notable diminishment of power and autonomy away from the student co-researchers and back to figures of authority, such as the school inspector.

In addition to conviviality and capaciousness, feeling safe was a fundamental element that emerged as key to creating effective learning environments for neurodivergent young people. This was due to the vulnerability engendered by taking risks and experiencing failure as part of the creative learning process. Risk and failure have the potential to negatively impact self-confidence and self-esteem, and so had to be neutralised through modelling, reassurance and support. Secondly, being invited to communicate and participate freely within a capacious learning space required student co-researchers to be authentically themselves. Authenticity increases vulnerability because any perceived criticism or negative outcome may be experienced as a reflection of self. This was guarded against by establishing non-judgemental spaces as far as was practicable. Finally, over the course of

the four cycles of CPAR, student co-researchers demonstrated increased autonomy, taking control over their own learning, and shaping learning encounters with other students. With increased responsibility and complexity, students also become more vulnerable as the risk of potential failure also increased. For these reasons, protecting educational spaces through reassurance, mutual support, modelling behaviours and non-judgement was crucially important for facilitators and students alike.

These spaces were established through the values of openness, honesty, acceptance and mutual respect that translated into habits of communication and behaviour evidenced by facilitators and co-researchers throughout the process. These are habits that can be easily undermined in competitive individualistic learning environments. It is important to note, however, that because authenticity was required, people were generally honest and respectful of one another's vulnerability, meaning that when it mattered, student co-researchers offered support and tried to provide the help that was needed. Creating safe spaces for learning relied upon mutual trust and respect, alongside assurances that nothing bad was going to happen, and that everyone was vulnerable in the same way. With these conditions in place, students had the confidence to try, and with appropriate support, to persevere to the point of acquiring new knowledge and skills, and eventually experiencing successful outcomes. Communication and collaboration between students improved through each progressive cycle as a consequence of their personal and social development within protected spaces of learning.

5.4 Summary of Key Learning Points

This study has revealed the ontological, as well as epistemological, importance of learning as personal development; learning is a process of becoming rather than simply acquiring knowledge. In both the semi-structured interviews and the 4 cycles of CPAR, the student co-researchers placed very little emphasis on *what* they were learning, focusing instead on how their experience of learning and their environment made them *feel*. The difference between neurodivergent students and neurotypical students is a fundamentally ontological one - it is a difference in how individuals experience the world. The neurodivergent students in this study explained how in mainstream educational environments, their experience and

consequently their personhood was frequently devalued and ignored. This caused them to feel anxious, demotivated, and ultimately to experience poor mental health.

Creative learning, however, relies upon personal experience. It is not primarily concerned with what is known, but how things might be discovered. It is a process that actively attends to personal development, and embraces multiplicity. Within creative practice, neurodivergent students can find a way to learn that works for them, and in doing so, discover a love of learning itself.

This research project has demonstrated that, through effective facilitation, creative learning environments support neurodivergent students to progress over time from dysregulated states, through self-regulation and engagement, to eventually becoming self-motivated learners. This is not a linear process, and may need to be repeated over the course of a session, weeks or months, but gradually students will increase in autonomy, requiring less support to progress through each stage.

Fig.7. (overleaf) How “crippled” creative learning environments facilitate self-motivated learning in neurodivergent young people.

“Crippled” Creative Learning Environments

“Crippled” Learning Environments

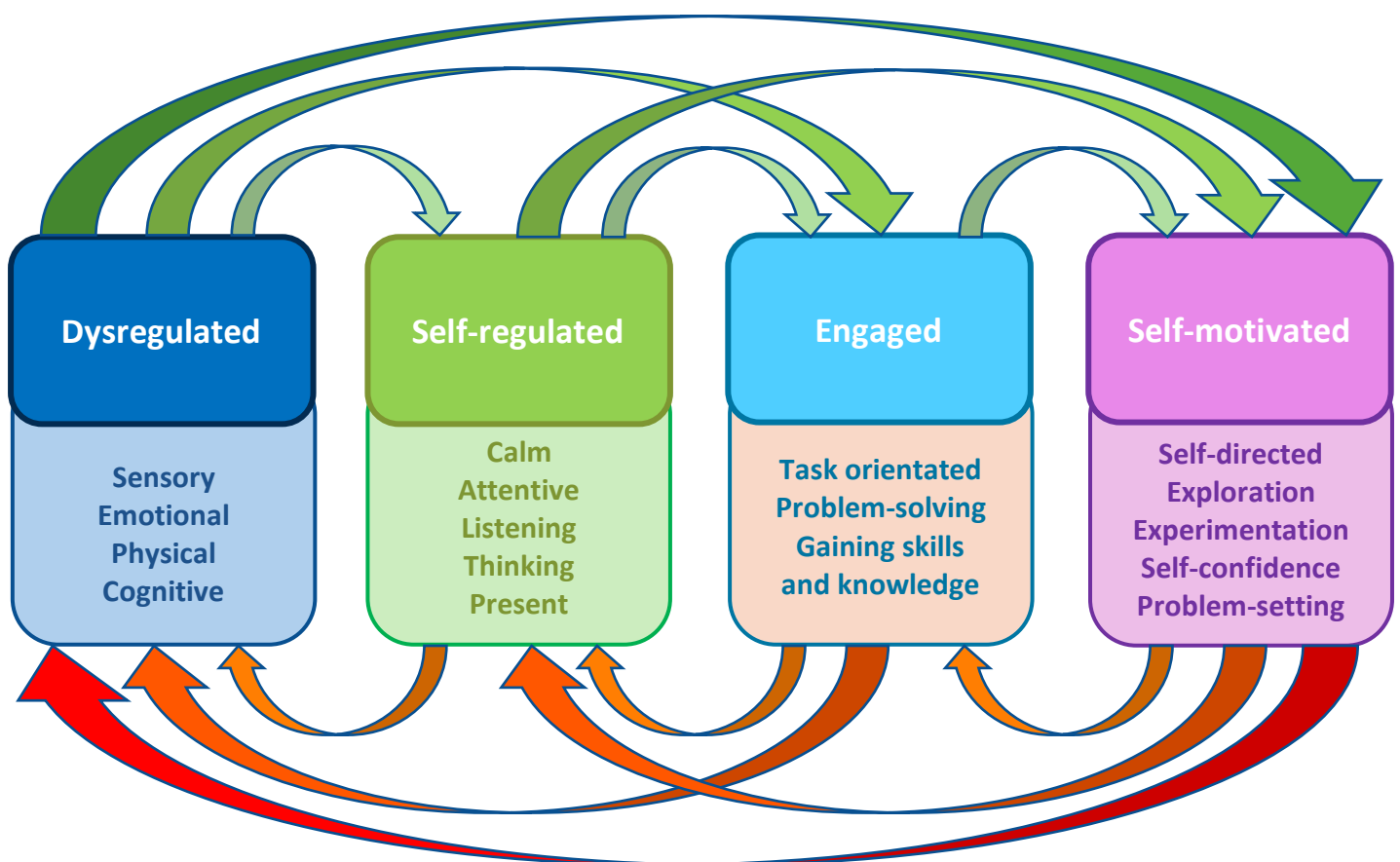
Freedom of choice
Freedom of participation
Freedom of movement
Collaboration
Psychological safety
Freedom from judgement
Difference as strength
Valuing lived experience
Failure as empowerment
Unconditional positive regard

Creative Learning Environments

Least restrictive environments
Strengths-based approaches
Positive niche construction
Co-creation
Mutual support
Mutual respect
Confidence through experienced success
Failure as learning process
Constructive feedback

Creative Pedagogical Approaches

Flexibility and responsiveness
Pedagogies of taking care
Reflexivity and understanding
Democratization of power
Capaciousness
Conviviality
Autonomy support
Safe and protected spaces
Modelling failure
Openness, honesty, acceptance



Inaccessible Learning Environments

Lack of choice
Lack of motivation
Lack of support
Lack of acceptance
Lack of psychological safety
Competition
Conformity
Feeling powerless
Failure experienced as personal

Figure 7. provides a visual representation of how “crippled” spaces, creative practice and creative pedagogical approaches can work together to create effective learning environments for neurodivergent students by supporting them to transition from states of dysregulation, through self-regulation and engagement in tasks to eventually experiencing self-motivation as learners. However, as the diagram shows, this process is by no means linear; students may arrive to each lesson in differing states of self-regulation, motivation and readiness to learn depending on multiple external factors that can influence their social and emotional wellbeing as well as their mental health. As no classroom is perfect, there will also be instances, even in the most supportive environments, where students needs are not met, and they may move into states of greater dysregulation or inability to engage. However, overall, if students experience more of the factors in the columns above the diagram than below it, over time, their ability to engage effectively with learning should increase, as was demonstrated across the four cycles of CPAR.

It is possible to draw similarities between the contributions of “crippled” educational spaces, creative environments and creative pedagogical approaches, such that they were found to work together to compliment and reinforce one another. For example, students require freedom to choose how and when to participate to effectively manage their individual sensory, emotional, physical and cognitive needs. This frequently means taking charge of time (pace, structure and breaks) and space (where to sit, how and when to move around), as well as how to participate (just watching and listening, asking questions, having a go, or taking the lead). Creative practice also requires flexibility with regards to use of space and time, and works to respond to the needs of the students, allowing for the least restrictive conditions for students to explore and learn. Similarly, students must feel supported and empowered by teachers and facilitators to manage their individual needs without fear of being judged.

In addition to freedom and flexibility, students must also feel safe and supported to take risks and learn through exploration. Both “crippled” and creative learning environments support psychological safety by viewing difference as a strength and valuing lived experience. They also each support collaboration and co-creation, appreciating the benefits of working together and utilizing one another’s strengths. It is the responsibility of teachers

and facilitators to establish and maintain this safe and supportive space for learners to inhabit. This also requires a democratization of power, and effective autonomy support to enable students to eventually take responsibility for their own learning.

Finally, understanding failure as integral to learning, experiencing success and receiving supportive and constructive feedback are all fundamental to creative practice. Critical Disability Studies theorists such as Kafer (2013) reject or reframe traditional understandings of 'failure' as harmful, aligning human worth to economic productivity. In this way, both crip theory and creative practice reject failure as both personal and inherently negative, and instead see failure as processual and a necessary part of the human condition. Similarly, both recognise the importance of positive, self-affirming experiences of success and recognising individual strengths to build self-confidence and self-esteem, as well as the motivation to carry on and try again. Facilitators play an important role in both modelling positive attitudes towards failure, and creating conditions supportive of individual success. All within an environment of acceptance and non-judgement.

Once students begin to engage with tasks and experience positive outcomes, confidence increases and there will be a need for greater self-determination, where students have the opportunity to take control over their own learning process. At this stage, engaging with tasks that align with particular strengths and interests increases intrinsic motivation and likelihood of experienced success. Because this is a non-linear process, and individual engagement may emerge and recede over time, the skill of a creative teacher or facilitator comes in being able to identify what a particular student needs to progress in a particular session or at a particular moment. It might be an opportunity for self-regulation, positive niche construction and strength-based task allocation to pique their interest in a task, an opportunity for experienced success to increase their intrinsic motivation, or the chance to act autonomously and take control of their own learning. If the teacher or facilitator has awareness and experience of meeting these different needs, they should be equipped to help students progress eventually towards self-motivation. Figure 7. Is an illustration of the complexity of this process, but also acts as a visual representation of how more effective educational environments can be established for neurodivergent young people over time.

5.5 Conclusion

This thesis demonstrates how creative practice can be used to co-create more effective learning environments with neurodivergent young people. The rationale for the study was that neurodivergent young people currently experience multiple forms of exclusion within neoliberal education systems due to normative expectations of attainment and behaviour, and foundations in neurotypical ways of thinking and learning. A more just education system should ensure greater accessibility for all students, irrespective of their cognitive differences, learning needs or preferences, and would attend to the ontological as well as the epistemological development of students.

This thesis contributes to the existing literature on creative education and neurodiversity in a number of different ways. Within the Literature Review, a number of studies were considered that have explored different aspects of co-creating more effective educational environments for neurodivergent students. This study has replicated some of these findings, and gone beyond the scope of these investigations in some important respects. For example, Eardley (2023) developed the 'no plan plan' to give neurodivergent students the autonomy and freedom to determine the structure and content of a school Film Club. Within *this* thesis, freedom of choice and participation was balanced throughout with scaffolded learning and support to help students to develop divergent and convergent creative thinking skills, technical expertise and self-confidence, with autonomy support becoming readily available when learners felt comfortable to take the lead. It was found that different kinds of freedoms are necessary at different stages during the learning process as students develop and progress.

Other studies focused on changing perceptions of what counts as participation and engagement for neurodivergent learners (Bakan, 2014) or 'neuroqueering' our concept of a meaningful contribution (Shannon, 2020). Within this study, students were able to define the terms of participation and engagement, creating their own liminal spaces, such as with K who chose to sit in the doorway to retain freedom of movement and engage with the session in her own way, or R who chose to manage his attentional needs to moving around the classroom offering help and advice to others. Through use of a participatory

methodology, student co-researchers were able to make choices about participation and engagement, but could also experiment and play, discovering what worked most effectively for them over time.

Finally, Ward (2024) comes closest to the aims of this thesis by drawing a parallel between creative practice and participatory methodologies employed with neurodivergent young people, characterising both as examples of 'playful learning' through experience. In Ward's study (2024), the benefits of multimodal learning for neurodivergent students is highlighted, using digital storytelling and games design to give neurodivergent students spatial, relational and narrative agency throughout the process. *This* thesis, however, attempts to go further by aligning crip theory and creative practice to demonstrate how creative learning environments can actively challenge competitive, individualistic and deficit-oriented models of learning.

By drawing a parallel between the environmental conditions produced by creative practice and those described by critical disability studies theories such as 'crip' theory, this study demonstrates that creative environments are accessible to a diverse range of students because they embrace heterogeneity and difference, they are capacious and fluid, provide multiple entry points and modes of participation, and support diverse working relationships, interdependence and horizontal structures of power. Furthermore, engagement with the creative process becomes increasingly complex and sophisticated as students gain in knowledge, skills and autonomy with respect to their learning. Consequently, neurodivergent students are able to be themselves, learn in a way that best suits their capabilities, and be supported through a diverse network of relationships with staff and peers as they progress along their learning journey.

In addition, creative practice does not have to be restricted to the arts, but offers a framework that can be applied to many disciplines. As Amabile (1996) explains, all that is required to make a practice 'creative' is that it should be heuristic, meaning that the end goal and/or how to reach that goal should not be known by the student as they embark on their learning journey. Engaging in a process of discovery is where true creativity lies. It invites us to experiment, explore and find our own answers to problems and questions. This

is where learning comes to life and becomes personally meaningful to each one of us. If creative practice can inform the fundamental structure of our education system, then all students should be able to reach their full potential within a system that works for all.

Some examples of how this can be implemented practically with core academic subjects such as English, Mathematics and Biology have been trialled at ACE following the research process. In English, some staff have begun to incorporate performative elements such as dramatic readings and character development studies into their delivery of core English Literature texts. In Biology, students have had opportunities to construct models such as the double helix strand of DNA, using cocktail sticks and different coloured jelly babies to represent the various nucleotide pairs. In Mathematics, students have incorporated elements of design and technology to explore the real-world application of mathematical principles and formulae.

Introducing elements of creative practice into neurodiverse classrooms extends beyond 'discovery learning' as described by constructivist thinkers such as Piaget (1936), Bruner (1961) and Papert (1980). More than engaging with a process of inductive problem solving, creative practice facilitates the potential fluidity and openness characteristic of 'crippled' educational spaces (Kafer, 2013). Alongside pedagogies of taking care (Atkinson, 2022) and creative facilitation practices, creative learning environments are able to foster multiple modes of participation and engagement. For example, when taking part in a dramatic reading of Macbeth during an English Literature lesson, students can choose to participate in a multitude of different ways. They can act, design costumes, construct set pieces, offer direction or critical feedback or take notes on the script. Students are also able to adapt or change their mode of engagement and participation in relation to their current social and cognitive needs. Creative practice introduces collaboration as well as opportunities for students to utilise their own lived experiences in individual perspectives into the creative work. This enriches the learning experience of the group as a whole, whilst allowing individual learners to retain control and autonomy over their individual learning experience.

Limitations of this study

Despite demonstrating how creative practice can facilitate more accessible learning environments for a diverse group of students, there were a number of limitations to this study. Amabile's revised Componential Theory of Creativity (1996) was used here as a working model to conceptualise creative practice. However, as discussed in the Literature Review, a number of other models of creativity were rejected as they were considered to contain potential bias towards neurotypical personality types or situated some individuals as having greater creative potential than others. Whilst individual differences in creative potential are accepted, it was decided that a more universally applicable model avoiding some of these potential biases was necessary to determine effective learning environments for all students. However, the disregard of creative personalities and individual differences in this study does place a limitation on the findings; it was observed that some students possessed aptitudes in specific areas, such as divergent and convergent thinking skills or technical expertise. It was also observed that some students sought creative freedom, whilst others preferred the opportunity to solve problems within predefined parameters. Further studies focusing on the effects of individual differences within creative learning environments would be able to ascertain whether a creative predisposition yields greater benefits for specific individuals, but that would be beyond the scope of this study.

In terms of data collection, observations of student co-researchers' actions, interactions, motivation and engagement were made throughout by myself and Mr. S. We compared and combined these observations following each session into a single document to ensure data was mutually verifiable and to better establish the validity of our findings. However, directly quantifiable measures of 'task motivation' and 'engagement' may have yielded more robust data, but this would have proved problematic with this particular cohort of student co-researchers, as individual differences in behaviour, personality traits and modes of engagement varied so widely that any comparative measure would have proved unreliable. For example, some students displayed their task motivation in an overtly demonstrative and vocal way, whilst others showed very little behavioural signs of motivation, but their ability to stay in the room for a 2-hour lesson indicated a significant improvement in their motivation to learn compared with other lessons. It was only by getting to know students

individually, and through a reliance on professional judgement and expertise, that it was possible to determine what counted as significant behaviour relating to improvements in motivation and engagement. However, a lack of quantifiable or direct measurement of factors such as task motivation and engagement does limit the conclusions that can be drawn as to the extent of the impact on individual student's learning.

In terms of additional limitations, this research was co-produced with a relatively small group of neurodivergent students. It is possible that the practices recommended here may be more challenging to implement with a class of 30 students. However, developing working relationships as described may be achievable with a larger class, but over a longer period of time. Secondly, creative practices may not be easily transposed into every aspect of the curriculum, but it is anticipated that even partially introducing creative practice into different elements of the curriculum would make them more accessible. Thirdly, this group contained only neurodivergent students, so it is not apparent in the data what effect creative practice would have on neurotypical students' engagement and learning. However, as creative practice is based on the principles of freedom, choice and autonomy-support, it is anticipated that it would improve engagement and learning outcomes unilaterally. Finally, as was evidenced on a couple of occasions throughout the research process, neoliberal values, culture and practices are firmly embedded within the education system, and run counter to the freedom, choice, fluidity and interdependence offered by a creative approach to education. Although a dramatic shift would be very difficult to achieve, embedding some of these practices within the existing system may slowly shift perspectives towards alternative forms of teaching and learning. Please see the description of a proposed 'Neurodiversity Ambassadors Programme' for schools below which directly addresses some of these limitations, utilising the knowledge produced during this research.

Personal Reflections

All of the students who took part in this study shared a common experience of profound alienation within mainstream schooling, leading to poor mental health outcomes and disillusionment with education. Through getting to know them over the course of 6 months, as well as from data collected during their interviews and during the cycles of CPAR, it

became clear that for many, the purpose of education had become divorced from the actual practice of learning, leading to disengagement and withdrawal in the classroom.

Furthermore, as neurodivergent students attempting to fit into a neurotypical system, those feelings of alienation were exacerbated by being labelled as a failure with respect to normative standards of teaching and learning.

Engaging with creative practice provided a means to reconnect students with the purpose of learning, so that they experienced it as directly relevant to their daily lives. The fact that creative practice is concerned with finding solutions to problems means that successes are personal, useful and practical, and students are able to monitor their own performance as they gain in skills and competencies. This helps them to grow in confidence and become less vulnerable to external criticism as they are able to self-evaluate and take control of their own learning.

As well as reconnecting with the purpose of learning, creative practice also helps us to reconnect with one another. Systems based on power, control and competition divide us, and often exacerbate feelings of worthlessness, helplessness and low self-esteem. Systems based on co-operation, collaboration, mutual trust and respect, however, create space for everyone to be valued, and the potential to make the most of differences, individual talents and propensities. Creative practice paves the way for these working relationships, but can also be easily undermined by larger institutions and authorities if they do not operate under the same principles and values. In order for the benefit of collaborative learning and community values to be adopted more widely, multiple small-scale successes will be required to build a strong evidence base for this approach.

Recommendations for Future Research and Practice

As well as establishing the contribution that creative practice makes to accessible learning environments, this study also identified the challenge it poses to neoliberal values and practices that underpin the current education system. These include celebrating diversity over uniformity/conformity, collaboration over competitive individualism, processes over outcomes and personal development over individual attainment. The positive effects of

which on students may be difficult to determine within individual classrooms over short timescales. What is required, therefore, is change at an institutional level, accompanied by longitudinal studies which measure effects over longer time periods.

One example would be a neuro-inclusive schools/Neurodiversity Ambassadors Program, a proposal for which has been completed and is currently awaiting the outcome of National Lottery funding bid. This would provide a 12-week creative program aimed at classes of 30 Year 5 mainstream pupils, giving them the opportunity to design their own accessible learning environments, with outcomes fed back to schools through a series of recommendations. This would be accompanied by a comprehensive neurodiversity training program offered to staff and parents to give them a better understand of neurodiversity, encouraging more neuro-inclusive practices both in school and at home. It is anticipated that working towards greater neuro-inclusivity in schools, and making students instrumental in driving this change, would lead to improvements in mental health and well-being for all those who take part, and neurodivergent students in particular, reducing periods of absence and school avoidance as well as suspensions and exclusions.

Ultimately, systemic change will only be brought about by multiple instances of excellent practice that each operate under a unified set of principles and values that challenge neoliberal-abelism and competitive individualism, that systematically disadvantage and disable neurodivergent students, as identified above. Together, these examples of neuro-inclusive practice provide a robust challenge to the current system and serve to highlight how many children are currently being failed, needlessly. The challenge is great, but is currently being fought at every level within the education system, by those who believe in the potential of all children and young people and their right to access an education that works for them. Every time a teacher believes in a student who does not yet believe in themselves and shows them what they are capable of, the world becomes a better place.

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Appendix 1. Research Consent Form**LIVERPOOL HOPE UNIVERSITY****RESEARCH CONSENT FORM****Title of research project:**

Be the Change: Using creative practice to co-create positive learning environments with neurodivergent young people.

Name of researcher:

Christina Beaumont

I confirm that I have read and understand the information sheet for the above research project and have had the opportunity to ask questions.

Yes	No
-----	----

I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason.

Yes	No
-----	----

I agree to take part in this research project and for the anonymised data to be used as part of the researcher's thesis submission. Any further use of the data will be agreed to separately following completion of the project.

Yes	No
-----	----

Name of participant:

Signature:

Date:

Appendix 2. Research Information Sheet**LIVERPOOL HOPE UNIVERSITY****RESEARCH INFORMATION SHEET – Gatekeeper****Outline of the research** (a couple of sentences in non-specialist language)

This research is aimed at finding ways to improve and develop educational experiences for neurodivergent young people through creative practice. Students will be asked to take part as student co-researchers with the opportunity to make decisions and share their experiences throughout.

Who is the researcher?

Name: Christina Beaumont

Institution: Liverpool Hope University

Researcher's University email address: 20210653@hope.ac.uk

Researcher's contact number: 07752657214

What will the students' participation in the research involve?

- Attending and participating in Art and Enrichment sessions as scheduled within their current ACE timetable.
- Engaging in group discussions during sessions to decide on the content of a series of creative workshops that will develop their creative skills and knowledge.
- Observe and reflect upon the workshops to make changes and suggestions, with the aim of improving your overall learning experience.
- Reflect on the experiences of everyone in the group to figure out a lesson structure that works for everyone.
- To use their new skills and knowledge to work towards a creative output (individually and as part of the group).
- To reflect upon the process on a one-to-one basis with the researcher at the end to give feedback and final thoughts during school time.

Will there be any benefits to the students taking part?

- They will gain a new set of practical and creative skills.
- They will be able to have meaningful input into what and how you learn.

- They will be able to specialize in areas that they enjoy and feel that they have achieved something significant at the end.
- They will be given individualized help and advice about the next steps academically and professionally and further opportunities within their chosen area wherever possible.
- They will be able to build a learning environment that specifically meets their needs.
- They will have the opportunity to work in an environment that will help to build their confidence, self-esteem and ability to work with others.

Will there be any risks to the students taking part?

- There may be some minimal physical risks involved in certain creative or making activities, but these will be individually risk assessed, and all activities will be well supervised at all times.
- It is possible, but unlikely that situations might arise during the project that increase feelings of anxiety or stress. The young people will always be encouraged to share any negative feelings that arise during workshops, and there will be multiple ways that these feelings can be expressed. They will not be asked to take part in any activity that increases feelings of anxiety or stress, all concerns will be treated seriously, and every effort will be made to ensure that they feel comfortable and happy throughout the process.

What happens if I or the students decide they don't want to take part during the actual research study, or decide that the information given should not be used?

- You may withdraw your consent at any time without any negative consequences, and students will still be allowed to participate in sessions without any of their data being used.
- If you or your students withdraw consent and decide to re-join later, this will also be permitted. Data will only be used for research cycles in which consent was given.
- If you are concerned that the students are experiencing any negative effects from taking part in the process, you have access to the researcher's personal mobile number (at the top of this document). Please share any concerns directly with the researcher. All concerns will be addressed immediately. You will also be able to withdraw students from the process at any time.
- You can withdraw your consent or permission for data to be used as part of the study up to 3 weeks after the research phase is complete. You will be given a specific date once the research begins.

How will you ensure that students' contributions are anonymous?

- Their name will be removed from the final written report, and a pseudonym or 'code name' of their choosing may be used instead.

Please note that the promised confidentiality and anonymity cannot be assured if, during the research, it comes to light that you are or your child is

involved in illegal or harmful behaviours which I may need to disclose to the appropriate authorities.

Appendix 3. – Data sample of observations and reflections from CPAR cycle 1

CPAR Cycle 1 – Session 2 Establishing Co-production Lighting

Observations

Session 2

- A will use trial and error to find solutions to problems without seeking help and advice, and sometimes even without listening fully to instructions. However, once help and advice are offered, he will work together with others to reach a solution.
- R has various practical skills and is able to figure out solutions to novel situations with relative ease. When asked whether he enjoyed practical lessons like these, he nodded 'yes'. About half way through the double lesson, he removed himself as in the first session, but did re-join the group once there was something practical to contribute.
- O was very happy to meet Mr. S, who she knew from the Everyman youth theatre, announcing to the class 'See! I know people!' She found all of the manual tasks quite challenging including rigging the crossbars and tightening the nuts but worked well with N to achieve this. She said it was 'too hard', but persevered with help from N. She attempted focusing but was distracted by the selection of gels and using the lanterns to light A and explored the different 'moods' she was able to create.
- When she couldn't find the gels she wanted, O combined a number of different gels to achieve the desired effect and was very pleased with the results. She has difficulty tying knots, but after I demonstrated a couple of times, she had a go. She was still a bit confused, so I did it with her, then she managed to do it on her own. She was really pleased, exclaiming 'Look! Is that right?!' I said yes, it was great. I explained how people's brains work differently and that some people find 3 dimensional thinking a bit tricky, but that if you practice, you can get the hang of it. She seemed very pleased and came with me and Harry to load the car.
- She tried to pick up 3 scaff bars on her way out but realising that this was dangerous and that she was likely to hit someone on the way out, opted for one instead. Walking back to class, she gave Harry a big hug. A few times in the lesson, she referenced having trouble with practical tasks, and also that her OCD makes her nervous, so she was afraid to electrocute herself and that she would get burnt on the light. Despite these fears, she worked safely and tried everything.
- N was really pleased that she was able to rig and focus lanterns correctly, showing real enthusiasm and engagement, commenting 'I'm really into this. This is amazing'. Shortly after, however, she left the room because she felt sick. She went out to get a glass of water and was in the corridor for about 20 mins, but eventually came back in and took a seat at the back, but still seemed fairly engaged. She mentioned that sometimes she feels really sick and gets shaky. I gave her a biscuit and she said she's getting tests for blood sugar. When I asked how she slept, she said 'really bad'.
- M was calm and engaged throughout the session. He spent a long time focusing and cutting gels, demonstrating commitment to both tasks. He preferred to stay behind

the equipment rather than being centre of attention. When asked if he preferred it without the tables so that he could move around the room, he said 'yeah, definitely'.

- H immediately attempted rigging on his own, but then checked in with the facilitators to make sure he had done it right. He was keen to ask questions throughout about how things should be done correctly and the reasons for them. He was enthusiastic, helpful, methodical and engaged throughout the session.
- A is enthusiastic, but this sometimes makes it difficult for him to listen to instructions. He likes to perform and act silly, but is not necessarily bothered about what others think. He seemed to get a bit bored and distracted at one point and started playing with scaff and spanners. He did help to pack away, but only on the promise of a biscuit.
- A school inspector came into the class during this session. This was pre-empted by Lisa coming into the room and asking what the lesson objectives were before writing them on the board. The lesson paused when the inspector came in, for us to explain to him what we were doing. K was pushed into the room by a teaching assistant from another class during the inspector's visit. She seemed petrified and pushed past everyone to get back out of the room. For the last 20 minutes, she came back in and stood by the door. It was unclear whether this was her own choice, or at the behest of one of the teaching staff. I text her mum after the session to let her know what had happened.

Reflections

- A is confident and self-assured, with lots of ideas and enthusiasm, but is sometimes impatient to get things done.
- R enjoys opportunities to use his pre-existing skills in situations where he can work out solutions for himself. He doesn't like anyone drawing attention to what he is doing, and promptly exits situations where he feels out of his depth. He will accept help when it is given, but does not ask for it. He needs the freedom to manage his own engagement, and for the teacher/facilitator to recognise situations where he requires help and support.
- O takes comfort and reassurance from positive relationships with her peers. She is also keen to show that she has other social connections outside of school, explaining why she was so happy to see Mr. S.
- O finds all manual tasks very challenging due to her dyspraxia, and this is further exacerbated by her OCD, which causes her to imagine the worst will happen in any new situation. Despite these challenges, she tried everything and was elated when she managed to master a new skill. Explaining a bit about neurodiversity was an attempt to make her realize she wasn't alone, and to subtly acknowledge that she tries really hard. After that, she was very keen to help with packing away.
- Despite having some extreme anxieties about danger, O was able to manage this and make a reasonable assessment of different risks throughout the session, including carrying fewer scaff bars to make sure she didn't hit anyone. This shows a high level of self-awareness and reflexivity, even when it is difficult for her to manage intrusive thoughts. She felt able to share some personal information about her neurodiversity towards the end of the session which demonstrated that she felt safe and could trust the staff enough to be open and honest without fear of being judged.

- O is willing to try anything with encouragement, values relationships that make her feel safe, and seems to also value the opportunity to be open and honest about her own experience, knowing that she won't be judged for it. O really benefits from reassurance and knowing she has done a good job, or having her achievements recognized, particularly the extra effort it takes her to master a particular skill.
- N was very motivated and enthusiastic about rigging and focusing lanterns. She listened carefully and followed instructions. However, she has sudden dips where she is unable to concentrate or has to leave the session to get water or sit down. In both sessions, she looked tired and mentioned that this is affecting her ability to participate. N is willing but not necessarily always able to participate due to circumstances outside of school. She benefits from being able to engage in a flexible way, taking time out as necessary without drawing attention.
- M seems to work best in an open-plan setting with practical tasks that he can choose and space to move around. He confirmed this when asked. M also seems to get highly absorbed in certain tasks that he is enjoying and needs to be given time and freedom to explore these fully to feel satisfied and reassured.
- H is concerned with getting things right and likes to understand the reason and method for different tasks clearly. Despite some challenges, he will immediately give things a go and checks in with facilitators regularly to make sure he is doing it correctly. He doesn't seem to be phased about making mistakes, as long as he has a straightforward solution. He also likes to understand how equipment works, more than playing with it to see what artistic effects he can create. He seems to feel more comfortable with manual and practical tasks because there is a clear method, rather than more open creative tasks where there isn't one 'right' answer. Despite appearing confident in his own abilities, Harry needs clarity and reassurance where tasks are ambiguous or open ended.
- A is enthusiastic and engaged when it's something he is interested in, but becomes quickly bored and distracted if it's not something he's in the mood for. He needs to be given instructions or information a couple of times in different ways to take it in. He knows right from wrong, so can be disruptive, but is never malicious. However, he does need an outlet for his energy, some leeway with his behaviour and potentially the opportunity to act the clown, or to be given tasks where he can be centre of attention to help motivate him and direct his energy positively.
- The inspector's visit caused a notable disruption to the session. The behaviour of ACE staff became notably performative, and the wellbeing of the students and their learning was disregarded under the need to impress the inspector. For most of the students, this had relatively little impact, however, for K this had a large negative impact, as she was forced to enter and stand in a room where she didn't want to be in a situation that was noticeably more socially awkward than usual. This is presumably because staff didn't want the inspector to see any students sitting in the corridor. To K's credit, or perhaps because she had no other choice, she was able to force her way out of the room almost immediately.

Appendix 4. Data sample from semi-structured interview transcripts**Interview 2 – with A**

Chris: So can you tell me anything about your experience of your school before ACE, in terms of what you found difficult, or what did you enjoy?

A: I've actually been to three different schools before ACE.

Chris: Oh wow, OK. And were any of them better than the others?

A: So the first school I went to was Saint Paul's which is pretty close to here.

Chris: Mm hmm.

A: It was alright, like. It was more like, erm, it was like a cheap school and it was just all... like it was just kind of rundown.

Chris: (small laugh at 'cheap school').

A: There was, like, low staff...

Chris: Right.

A: All the equipment was typically broken.

Chris: OK.

A: And then there was no real, like, supervision and stuff.

Chris: Oh OK, so you were kind of left to your own devices a little bit?

A: Yeah, for the most part.

Chris: OK. And then what was the school after that?

A: Well, we left there, and then I went to Dell Tower College.

Chris: OK, and what was that one like?

A: Well, it was actually a private school. It was around a 40-minute drive, which was inconvenient, but it was definitely a bit different, and it was definitely a bit more complicated for me.

Chris: OK.

A: All the individual classes... 'cause while in this school (ACE), I do prefer it if we stay in one class, but since all the classes are like 2 seconds away from each other here, it's pretty easy to walk in between them all.

Chris: I see what you mean, yeah.

A: But in my last school, you had to literally go from one building to the next, like different specific buildings.

Chris: And so was it difficult to find your way around?

A: It definitely was. I was there for like 2 years-ish, and even to this day, it was still dead difficult.

Chris: Right, and did you get any help with that, or did you have to just...?

A: For the most part I just followed my class, but if I like needed to go to the bathroom or anything, and they went, then I'd, I'd be completely lost. I wouldn't be able to find them.

Chris: OK, and did that, did that make you feel stressed?

A: Yeah definitely, because everyone was so quiet, there was no one there (to ask).

Chris: Right.

A: And everyone was dead like posh and stuff, and I came from that school before, so I just kind of like stood out, if you know what I mean?

Chris: OK. Did that make you feel a bit, like, self-conscious?

A: A little bit.

Chris: And then was there another school after that one?

A: Yeah.

Chris: And what was that one like?

A: So after that school, I went to De la Salle.

Chris: Right.

A: Now, I ended up actually not doing Year 6.

Chris: OK.

A: Because erm, when I was in the private school, I got held back a year...

Chris: Right.

A: But then I got pushed forward to year 8, which is the I should have been in originally...

[interruption]

A: So yeah basically, in De la Salle it was like... it was definitely... it was more compact but it was... you still had to walk around the school to each class... It was like in between one of the two schools... not in distance, I just mean, like, you to walk a certain distance, but not too far.

Chris: So is that one of the big things that you find challenging is the actual layout of the school?

A: Yeah, like *this* school [ACE] there's like three... there's *five* classes I mean you go to, three of them are in a row, and then these two are next to each other, and they're just across the way...

Chris: So you don't feel that you're going to get lost?

A: And the bathrooms always in the middle, so it's dead easy to get to it.

Chris: OK, well, do you know, that was gonna be my next question, is what... how do you feel about being at ACE? Do you think it's better, or?...

A: Oh yeah, it's definitely better than the other schools.

Chris: Yeah? And do you think, is there any difference in the teaching or the teachers?

A: yeah, yeah.

Chris: Is that better or worse?

A: The teachers are better.

Chris: Better?

A: In the school, most of the teachers are fine with having like a detailed conversation.

Chris: OK.

A: Like, they're down to talk about if you need help with a question, or completely something unrelated.

Chris: OK, so do you... do you feel like they've got more time for you?

A: Yeah, definitely. They treat each student like they're an *individual* person, instead of like a flock or something, just like a *group* that someone has to deal with. They treat... they treat us more like *individual* kids.

Chris: And d'you think part of that is having smaller classes as well?

A: Yeah, smaller classes do help because... in all my other... in my first school, there was like 30 kids per class, which was definitely too compact.

Chris: So I guess it's almost too much for a teacher to get round and speak to everybody?

A: Yeah.

Chris: So you can kind of felt a bit lost?

A: Yeah, exactly.

Chris: Amazing, so in terms of the sessions that *we've* done, erm, how have you felt about those? Have you kind of enjoyed them?

A: Best part of my school week.

Chris: Ahh... That's nice. Is there anything that you *particularly* like doing?

A: I guess just crafting stuff in general.

Chris: Crafting stuff? So do you... do you feel like you like *making* things?

A: Yeah, I just like *creating*.

Chris: 'Coz I... My feeling, if you don't mind me saying, is that you *are* very creative, and I've noticed that you like, or you seem to like having like a problem to solve?

A: Yeah, I love it, yeah.

Chris, OK, great.

A: I build Lego, I build on Minecraft, I just build.

Chris: OK, brilliant. Is there anything that you would like to have a go at that we haven't tried?

A: Building a puppet.