

Bronfenbrenner and Universal Design – A Tale of Two Theories for Inclusion.

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Having read this chapter you will be able to

- Understand how Bronfenbrenner’s theory fits with your work in comparison to other psychological theories
- Understand the terms “Universal Design (UD)” and “Universal Design for Learning (UDL)” and how they relate to inclusion and your practice
- Demonstrate the value of combining “Bronfenbrenner” and “Universal Design” when designing and conducting your practice to be as inclusive as it can be for a diversity of learners

Introduction

Let’s be honest! Your job as an educator is multi-faceted – from having to know about numeracy and literacy, assessment of learning (AoL) and assessment for learning (AfL), to other important things you probably have not been taught about in your initial education course – how to deal with a myriad of issues such as bereavement, bullying, and tiredness. But at the heart of your work is the important question posed by Sapon-Shevin (2003): “what kind of a world do we want to create, and how should we educate students for that world?” (p. 26).

In this chapter, we encourage you to be a reflexive and inclusive reader. So, as you read, firstly reflect upon your own experience of educational inclusion – either from your own experience as a learner, or with the role you now have in education. Secondly, as you reflect upon your own experiences, have a think about how the content of this chapter can

help you to become a more inclusive practitioner. We will show you that theories are, simply put, just a collection of good ideas that can help your practice.

We will first introduce you to the great thinking tool Urie Bronfenbrenner (1979, 1986) provided us with to consider the learner – not just in terms of their physical, intellectual, emotional, and social development, but importantly, how the learner is influential in – and by – people and social structures around them (e.g., friends, family, neighbourhood, government, world issues). That is, Bronfenbrenner’s work helps us to see the learner “In context”. The second thinking tool are framed by Universal Design (UD) (Story, Mueller, & Mace, 1998) and Universal Design for Learning (UDL) (Rose & Meyer, 2002); approaches that support future development of inclusive practice. These approaches help our work to be as inclusive as possible for the great variety of learners we encounter.

Psychology and Education: Understanding the Developing Person Using Theory

Theory allows us to understand the developing person while appreciating the role of psychology in education. Table 1 is short overview of the key thinking about the development of children and young people that we have gained from great thinkers in the field of developmental psychology. The combined understanding that we get from each of these small reviews enables us to start developing a more holistic perspective of how the individual develops and learns.

Table 1. A comparison of different psychological theories.

Theory	Useful Reading	Brief Overview
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Bronfenbrenner and Universal Design – A Tale of Two Theories for Inclusion

Jean Piaget – Theory of Cognitive Development	(Donaldson, 1978)	How our thinking and cognition develops across various developmental stages - being capable of increasing complexity in cognition as we grow from babies through childhood and into early adolescence
Erik Erikson – Theory of Psychosocial Development	(Erikson, E.H. 1951/ 1995)	A theory of psychological development that attempts to explain how we develop “psycho-socially” –how people around us help us to develop a sense of who we are
The Behaviourists (e.g., Watson, Skinner, Thorndike) Behaviourism Learning Theory	(Schneider & Morris. 1987). (Malone, 2014).	Understand learning as a series of “stimulus-response” events <i>For example, when we are teaching our new puppy to “sit”, we can see that the more often we pair a treat with the command to sit, the puppy gradually learns that there is a relationship between you asking it to sit and getting that treat! Can you think of instances where you use this technique – either in education or at home with children?</i>
Bandura – Social Learning Theory	(Bandura & Walters, 1977).	How children learn by “imitation” and “modelling”. Children learn by example, from watching what others are doing – modelling what they see
Vygotsky – Sociocultural Theory of Cognitive Development	(McLeod, 2020).	Notions of “scaffolding” and the “zone of proximal development” help us to understand that children can “reach” beyond what they might be capable of when we support them in their trials and errors.
Bowlby’s Attachment Theory	(Bowlby, & Ainsworth, 2013).	The quality, strength, and consistency of our early attachments and relationships with others are important for healthy psychological development. For example, are our attachments warm, stable, and consistent? Or are they cold, detached, and not predictable.
Dweck (and subsequent work of Mary Ainsworth and Mary Main in educational settings)	(Dweck, 2017).	Dweck helpfully posits that we have “the power of yet” – the idea that whilst I got the answer incorrect this time, it is just that I do not know the answer or mechanics of how to resolve the problem “yet”! The difference between having a “fixed mindset” and a “growth mindset”

Bronfenbrenner classically declared that “. . . it can be said that much of contemporary developmental psychology is the science of the strange behavior of children in

strange situations with strange adults for the briefest possible periods of time.” (1977, p. 317: emphasis in original) and correctly identified a central weakness in all these classic theories. They largely ignored the important symbiotic relationships between children and their “ecologies” – i.e., the very real situations and influences that everyone encounters in daily life. Observing the rich relationships, both proximal (e.g., dyadic relationships in the family home) and distal (e.g., influence of world politics, national policies) can be influential and enables us to understand the developing lives of children and young people, as is evidenced in the “Growing up in Ireland Study” (McCoy, Smyth, & Banks, 2012). It is in this context, we believe that Bronfenbrenner’s theory is exceptionally beneficial for us.

Bronfenbrenner and his Bio-ecological Approach

Bronfenbrenner’s bio-ecological theory and framework (e.g., Bronfenbrenner, 1977, 1979) is useful in conceptualising and understanding the lives of children and young people from a wide-ranging and encompassing perspective (Mc Guckin & Minton, 2014). It is a concept whereby we can consider a child or young person’s environment (ecology) as a multi-layered set of nested and interconnected systems, where the central “agents” influence development, each with varying degrees of directness. To illustrate this, the “systems model” can be illustrated by way of a series of concentric rings surrounding the young person (see Figure 1). These systems are illustrated as rings (representing the micro-, meso-, exo-, macro-, and chrono-systems) and arranged in accordance with their influence, from the most proximal to the most distal and indirect, but nonetheless important.

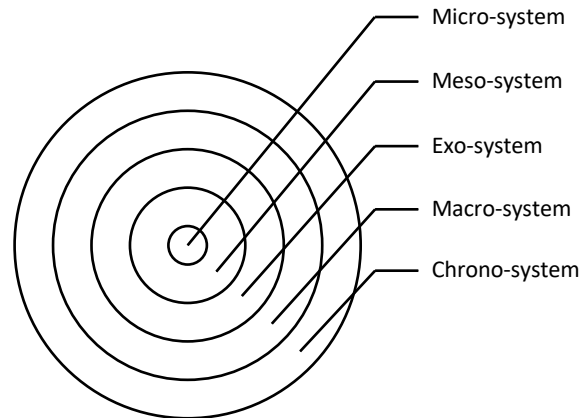


Figure 1: Bronfenbrenner's Ecological Model (1979, 1989)

The micro-system is the social ecology's "centre of gravity" and refers to the complex relations between the developing person and their immediate environment, including physical features, activities, social roles, and interpersonal relationships (Bronfenbrenner & Morris, 1998, p. 1645). The micro-system is characterised by those relationships that are often intimate and face-to-face (e.g., with mum, dad, siblings, relatives).

The meso-system incorporates linkages between two or more micro-systems in a young person's life and refers to the interrelationships between settings; such as those between home, school, and peer groups. as well as attributes, belief systems, resources and opportunities, life styles, and patterns of social interaction (Bronfenbrenner, 1992). As such, the meso-system includes home-school communication, parent-teacher relationships, and interactions between schools (as in transitions).

The exo-system is comprised of the young person's experiences of systems in a social setting in which they are not directly involved, yet experience the "indirect" effect of these systems (e.g., their parents' place of work, governmental agencies: Bronfenbrenner, 1994).

For example, a learner is not yet directly involved in a school to which he/she will be transitioning, although this is still part of their exo-system.

The macro-system represents the wider socio-cultural context that provides “blueprints” for explicit (e.g., laws) and implicit (e.g., normative expectations) social structures. These manifest as patterns of formal and informal interaction within the exo- and micro-systems (Bronfenbrenner, 1977). Coyne, Dempsey, and Comiskey (2012) illustrated ways in which learners can be impacted by forces outside the micro-system. For example, Irish learners have shown concerns about the economic recession (macro-system) through vicarious experiences of parental worry (exo-system).

The chrono-system, which shifted the model from ecological to a bioecological model, accounts for time and enables the study of continuity and change as part of a life course perspective. For example, this includes the patterning and lifelong outcomes from environmental events, critical periods during development (e.g., divorce, long-stay hospital care), and transitions over the lifespan. Chrono-system events may be of a personal and individual nature, or representative of a cohort effect – e.g., subtle but important differences between cohort experiences of life events before the global recession and cohort experiences of life events during or after the recession. Bronfenbrenner (2005) offered the following mathematical equation:

Development is a function of P-E (Person-Environment) across Time

$$[D = f(P-E-T)]$$

Considering that the chrono-system is hugely relevant to the lived experience of a person with SEND, perhaps compared to many of their peers, an educator can really start to understand the profound effects of life's adversities and how these can continue to have a reverberating impact on experiential events within the person's micro- and meso-systems, and of the added challenges that might be brought about by developments in the more "outer" rings (e.g., changes in government policy). That is, the individual's developmental growth and potential across the lifespan may be inextricably linked to a chrono-system event (e.g., acquired impairment, SEND, long term illness in childhood).

The Evolution of The Original Theory

Bronfenbrenner continued to update his model over his lifetime, with reference made to the role of biological maturation in individual development in all iterations (1995). He finalised his theory on developing an idea about "proximal processes", suggesting a process-person-context-time (PPCT) model (Bronfenbrenner 1995; Bronfenbrenner & Ceci 1994; Bronfenbrenner & Evans 2000).

The development of the PPCT model is based on the idea that human development should not only be viewed objectively, but must also include elements of experience or activity (Engeström 2016). In other words, the PPCT model shifted its thinking from viewing the developing person as "passive" to having an "active" role to play in his or her development. An example of this would be the IEP process which endeavours to ensure the learner becomes the driver in their (learning) system (Bergin, & Logan, 2013); actively participating in the dynamic, responsive, and reciprocal interaction with the surrounding environments through person-context interaction (Bronfenbrenner & Morris 2006).

PPCT further explored.

In the PPCT model, proximal processes (or process) is defined as a reciprocal interaction between an active developing individual and his/her immediate external environment.

According to Bronfenbrenner, these interactions are located within the microsystems of development and “occur on a fairly regular basis over extended periods of time”

(Bronfenbrenner 1995, p. 620). Scholars (Hayes, O’Toole, & Halpenny 2022; O’Toole, Hayes & Mhathúna 2014; Rosa & Tudge, 2013) researching in the area of education transition, early childhood studies, and inclusive education often view the process as the core component of the PPCT model as it emphasises the significance of a network of shared relationships which individual develops. Such shared relationships are not only limited to biopsychological human organisms (the child or other persons), but also include surrounding objects and symbols (Bronfenbrenner 1995). In education contexts, these relationships could involve child-adult, child-child, and child-objects (e.g., books, technology) interactions in a variety of regularly occurring activities such as playing, reading, and school outings.

For Bronfenbrenner and Morris (2006), proximal process operate either to facilitate or impede the development of the child, depending on the quality of the interactions, as well as the quality of the contexts where interactions occur. For educators working in busy classrooms with learners with SEND, or those who are able and talented, or both (dual exceptionality), the word “quality” is often defined in terms of learner-teacher ratios, class size, availability of support staff, physical facilities, and teaching resources. However, when “quality” is viewed in lens of processes within the PPCT model, school become a prominent feature of the environment of relationships in which all (both learners and educators) develop. Therefore, focusing on the power of quality relationships in the learning environment is the key for identifying the connections between and among the learners with SEND, their

relationships, and learning experiences. Conversely, the importance of ensuring that quality relationships in school are positive, strong, stimulating, anticipatory, and reliable leads to an emphasis on the skills and personal attributes of the educators (McLinden et al., 2017).

The Power of Movement.

Although proximal processes are considered the primary mechanism for an individual's development, the power of these processes are mutually influenced by the person - i.e, the learner. That is to say - there is movement and the approach becomes more dynamic.

The characteristics of the learner and both the direct and distant environmental characteristics over time can all influence proximal processes (Bronfenbrenner & Morris, 1998, 2006). To be more specific, Bronfenbrenner and Morris (1998) summarised three characteristics that are directly influencers: (i) demand, (ii) resource, and (iii) force. Demand characteristics include aspects such as a developing individual's appearance, age, gender, and ethnicity. These characteristics are easy to observe and can act as immediate stimuli that influence initial interaction. Resource characteristics are not as immediately recognisable. These relate to the developing individual's own biopsychological assets (e.g., past experiences, knowledge, skills, and intelligence), developmental liabilities (e.g., genetic inheritances SEND, neurodivergence), as well as social and material resources, such as access to food, housing, education opportunities, and support services. Finally, force characteristics are those that relate to the developing individual's dynamic traits of personality, for example, temperament, self-efficacy, persistence, and level of motivation (Smit, Lynn, Preston & Hay, 2020). Research has found that personal psychological resources of professionals, characteristics of the learners, and contextual sources of stress and

support all have an important role to play in shaping learner-professional relationships (Bardach, Klassen & Perry, 2022).

For those of us working towards a more inclusive society, allowing the “learner” to play an active part in the relationship provides us with unique opportunities. It is a dynamic approach that enables reflection on our beliefs about inclusion, while challenging assumptions, together with the beliefs of those learners we work with. As Bronfenbrenner reminds us “Every child needs at least one adult who is irrationally crazy about him or her” (Brendtro 2006, p. 163).

Staying Grounded

Staying grounded while navigating the relationships in the dynamic learning contexts perhaps most challenging. Therefore, minding and understanding the critical influences of the various contexts that exist in the learning environment provides an insight into the reciprocal nature of the relationships in an educational context. (Bronfenbrenner & Ceci 1994).

However, contexts are dynamic and situations change in our work – nothing ever stays the same. Bearing this in mind, understanding the environment we engage with and how it evolves, helps us to better navigate working relationships. Regular reflections on our own beliefs and values have positive influence, with careful and critical consideration about new assumptions. Professional supervision plays a part in this process.

The Winds of Change

Bronfenbrenner & Morris (1998) further identified three ways in which time could impact on proximal processes of a person’s development –(i) microtime, (ii) mesotime, and (iii)

macrotime. While the concept and impact of timing is not new, it is especially relevant when major events have an impact on a learner's lifespan, e.g. COVID-19 pandemic. We then recognise the power of proximal processes (P); the characteristics of the individual learner (P), the complexed and dynamic contexts where learning occurs (C), and most importantly, how our current practice shapes the landscape of inclusion for future generations (T).

Adopting a More Dynamic Inclusive Approach

Whilst the notion of inclusion is a wonderful concept, it has become largely restricted to a subset of learners – those with an additional needs and/or difference and those that teach them. In this section of the chapter, we encourage you to consider reframing your professional approach to inclusion rather than consider it “somebody else's business” (McCarthy, Quirke, & Mc Guckin, 2019).

An approach for inclusion that easily co-exists with Bronfenbrenner's bio-ecological model is that offered by Universal Design (UD) and Universal Design for Learning (UDL). Whilst Bronfenbrenner offers us an opportunity to understand the learning environment in a broader and more dynamic way, UD and UDL offer opportunities to design, redevelop, and implement positive inclusive approaches in environments that are continuously changing and evolving. Importantly, the core philosophy of UD and UDL is that we create inclusive thinking in all aspects of our work, so that it can be accessed by the greatest number of learners possible (Story, Mueller, & Mace, 1998) - from the “get-go” (Quirke & McCarthy 2020).

The demands of 21st century learners necessitate ongoing changes in the areas of curriculum, teaching, and assessment. Indeed, with the increasing utility of technology in our work (Wang, Quirke, & Mc Guckin, 2022), inclusion is continually evolving . . . and moreover we need to evolve with it! Combining your knowledge of Bronfenbrenner together with UD and UDL thinking across all aspects of your work - from inception, through development, to implementation and review - will contribute to a more dynamic and responsive approach to inclusion.

So What is Universal Design (UD)?

UD is a concept that originated from architecture and the built environment, and is based on design thinking. The social model of disability set the course for this new way of thinking. A UD approach seeks to create products and services, from the very outset, so that they can engage with by the greatest number of users possible (Mace, 2008). While UD seeks to include “many” individuals, it is important to note that the word “universal” does not mean the design can accommodate each and every individual. Rather, there is inbuilt recognition that no single approach can include everyone. Like Bronfenbrenner’s bio-ecological approach, UD is a dynamic process and demands constant reflection. Remember, UD simply asks we seek to include “with intent” or from “the get-go”, whilst constantly re-evaluating the work that we are engaged with (Quirke et al, 2020).

UD was proposed by Ron Mace, an architect who had a physical disability. Mace appreciated an individual’s need and desire to belong meaningfully, and his approach advocated for a move away from the traditional medical “add-on” or “reactionary” thinking about inclusion. While primarily focused on physical spaces, the seven UD principles that Mace devised with colleagues to frame the design process (Story, Mueller, & Mace, 1998),

have been successfully applied in a variety of environments - including learning. The essence of the principles is that they encourage a mindful, and perhaps more “constructive approach”, to inclusion. If UD is to be allowed to reframe our relationships and thinking with the learning environment, it is important to explore these seven guiding principles.

1. **Equitable use:** the design should be useful and have appeal;
2. **Flexibility in use:** the design should accommodate a wide range of individual preferences and abilities;
3. **Simple and intuitive:** the design should be easy to understand, making no assumptions about ability, communication skills, or ability to focus;
4. **Perceptible information:** the design should share all necessary information with ease, regardless of the user’s sensory abilities;
5. **Tolerance for error:** the design should minimise hazards and possible adverse consequences of accidental or unintended actions;
6. **Low physical effort:** the design should be efficient and comfortable to use, and not require unnecessary energy;
7. **Size and space for approach and use:** the design should be cognisant of the size and space (whether physical or virtual) and considerate of the user’s body size, posture, mobility, or context they are engaged in.

While the seven principles were developed for architects and designers, we too are architects and designers - building and creating with Bronfenbrenner and a UD approach (Quirke & McGuckin, 2019). With confidence, we can easily reinterpret these principles for our work.

What is Universal Design for Learning (UDL)?

The seven principles of UD have been interpreted for use in educational settings in a number of theories (Mcguire, Scott, & Shaw, 2006) while the best known, and most widely applied approach, is Universal Design for Learning (UDL) (Rose & Meyer, 2006, CAST, 2018). The CAST model of UDL underpinned by theories and research from the fields of learning (e.g., Vygotsky) and neuroscience appreciates pedagogical approaches, learning, and educational settings (Rose & Meyer, 2002). The CAST model is framed by “pillars”:

1. **Multiple Means of Engagement (the “why” of learning):** focuses on enabling learners to engage positively, enjoy and appreciate their learning;
2. **Multiple Means of Representation (the “what” of learning):** focuses on how we offer choice in learning content;
3. **Multiple Means of Action/Expression (the “how” of learning):** focuses on offering very real choice in assessment (e.g., multiple options – not just an essay) while meeting curriculum goals and learning outcomes.

For our purposes, inclusion within a UDL approach highlights that there is more than one optimal solution for every learner. UDL seeks to be relevant to the unique nature of each learner, creating experiences that maximises their potential (Rose & Meyer, 2002). While UDL asks that inclusive learning environments be designed with intent (Quirke et al, 2018, Quirke & McCarthy, 2020), it is important to stress that some adjustments may be required for some learners – either all or some of the time, depending upon learning requirements. UDL also shifts the focus of inclusion to be of concern to everyone – not the “special education specialist” – recognising we are all specialists when it comes to being inclusive in our work. This is an important development, in that the new focus is upon the learning

relationship we have with our learners (Mc Guckin & O’Síoráin, 2021; Quirke & McCarthy, 2020).

When Bronfenbrenner meets UD and UDL.

UD and UDL emerged from the social and rights-based models of disability – approaches that respect society may in fact cause barriers and ask that inclusion be reframed.

Bronfenbrenner also espoused the need to appreciate the person, process, and context over time if we are to realise meaningful results in our work. The usefulness of bringing these theories together is that it enables our view of inclusion in education to continue to develop – it can continue to include new understandings about learning, respond to the growing diversity of learners while also appreciating everchanging learning environments. The result is “Inclusion in action”.

Inclusion in Action

We can appreciate that starting a chapter which sets out to explain one theory, Bronfenbrenner, introduces another theory (Universal Design) and proposes a new way of looking at things is a bit like asking you to watch a firework display! But this is what happens when you explore theory!

Bronfenbrenner’s theory enables us to consider and reconsider the environment in which we work – and moreover to reflect on the relationships at play and the context within which they sit. UD and UDL offer us an opportunity to move away from models that built on a legacy of segregation, shifted to integration and struggle with inclusion, by allowing us to redesign and refresh our thinking while embracing values of inclusion.

Inclusion as framed by UDL and Bronfenbrenner (Quirke and Mc Guckin, 2019, 2020), demands a subtle but important shift. While recognising we are seeking to include and adopt using design approaches – it demands our professional practice for inclusion is personal, reflexive, emotive, dynamic, ethical and value driven – it takes an “Inclusion as Process” approach (Quirke, Mc Guckin, McCarthy, 2021). While all the parts are moving – the one thing you can control is yourself. Perhaps it is time to place yourself in the centre of Bronfenbrenner’s bioecological model, with a UDL hat on (!) and reflect on the shift this has for inclusion, inclusive practice and your learning environment.

Such thinking places responsibility and a renewed focus on the practitioner’s view of “Inclusion” while it must be remembered it does not mean starting over. There is decades of “inclusive education” developments and resultant adjustments in our work. Taking the time to reflect on what you know to be authentic, workable and true as you plan for a future version of “Inclusion in Action” is worthwhile.

Activities – Further Reading and Development!

Just as Bronfenbrenner recognised the importance of understanding the ecology within which we work and the influence of relationships – it is also important that we appreciate how we, as practitioners, today, relate to “Inclusion” and “Inclusive Practice” in and of itself.

1. Reflect on what you know to be true

Be honest and reflexive as you engage with Inclusion. “Inclusion as process” (Quirke, Mc Guckin, & McCarthy, 2022) is an example of a method that benefitted from the thinking enshrined in Bronfenbrenner’s, UD and UDL theory. It sets out how we need to value our approach to inclusion in research while it can be adapted for other practice.

How do you think you need to reframe your thinking if you are to adopt a dynamic inclusive approach in your work?.

2. Our work, our ecology and Inclusion demand change.

The “Theory of Change” approach (Ren & McGuckin, 2022) promotes collaborative engagement with others. Collective participatory approaches not only ensure the voices of all are heard, but also allows those of us directly involved to make change happen and effectively influence policy.

Can you recall a time when you observed exclusion in learning? Knowing what you now know - how might you affect positive change?

3. Appreciate your place in the system as you reframe your approach to inclusion using Bronfenbrenner! Bronfenbrenner is about being truly human and appreciating relationships – it is personal, value driven and most importantly, dynamic. It demands we get emotional about inclusion - that we engage with others.

Who do you need to build relationships as you develop your inclusive practice and develop your community of practice?

Conclusion

Congratulations for getting to this final part of the chapter! You have taken the time to do something very few of us ever feel we have time to do in our busy work as educators - you have taken the time to “stop and stand and stare”. But, in addition, we hope you were able to read and think about the content in a reflexive manner - remembering your own experiences of educational and social inclusion, and questioning your approach to what you do in

education. We mentioned at the start of the chapter that we did not want to present a checklist or recipe for how to “do inclusion”. Rather, we wanted to share our knowledge of two great approaches, that are easy to understand and apply, in a way that might encourage you to “have a go”! Education and inclusion are far from straightforward endeavours. As you leave us, we do hope you will continue your work with the words of Beckett (1983) guiding you - have a go!

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