



CONDUCTIVE
★ COLLEGE ★

JOURNAL

Edition 4. November 2021



NICE – Centre for Movement Disorders

Transforming the lives of children and adults with incurable movement disorders.

Registered charity number: 295873.

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★ EDITORIAL ★

This the Fourth Edition of the Conductive College Journal serves to reflect the thoughts, actions and insights of both qualified conductors and students. In spite of enormous change and challenge, the contributions in this edition reflect the activities of the Conductive College, and those who have engaged with our courses and training opportunities over the past 12 months.

Rossella Aroni adapted an assignment written in her first year in which she analysed the impact of Schmidt's Schema Theory Of Motor Learning when working with participants with Parkinson's, whilst Reka Simandi, at the end of her second year, summarised the learning she acquired from spending a whole academic year leading online Zoom sessions to children in a P&C setting. Contributions from qualified conductors reflect the Conductive College initiative generated in response to 'lockdown' in March 2020; a year-long CPD programme of sessions delivered via Zoom. This was an enlightening experience; one in which conductors from around the globe meet and discussed. Topics included consideration of what we mean

by 'holism', the impact of 'mindset' on ourselves and our practice, as well as critical analysis and articulation of our professional role.

As a result we have three contributions from conductors who participated; Zsofia Nadasi and her colleagues in Sweden, Natalie Walker (UK), and Judit Veperdi (Australia). These contributions all in some way reflect the discussions held over that time.

The final article is the work of my colleague Annamaria Berger-Jones who articulated her thinking in relation to the positionality of CE and the challenges faced in uniting theory with practice. Consideration of the need for a more robust theoretical framework upon which to develop practice resonates the significance of 2021. In December 1986 (35 yrs ago), the overarching charity of NICE, The Foundation for Conductive Education, was established. This edition of the Conductive College Journal highlights the beginning of a year of celebration. As a part of the history of the Charity, please enjoy, reflect and reference this edition, and if you can, contribute to the fifth edition in 2022.

The list of CPD activities for 2021-22 are:

12th & 22nd October: CPD tool – to help to track and direct own development

9th & 19th November: Theory-Practice – Building bridges

7th & 10th December: Mindset as a concept – positive psychology

11th & 21st January: The Human Principle

8th & 18th February: CE methodology and impact of remote working

8th & 18th March: Situating CE in the wider context

5th & 8th April: CE as holistic?

10th & 20th May: The 'orthofunctional personality' – what does this mean in today's world?

14th & 24 June: The conductor – Professional identity

12th & 15th July: Reflexive practitioner

★ REFLECTION OF THEORY INTO PRACTICE ★

SCHEMA THEORY AND THE CREATION OF INTENTION WITHIN THE CE SYSTEM

Rossella Aroni

Introduction

Conductive Education (CE) is an integrated and structured learning system for teaching and developing new movement skills for people with motor disorders that emphasises cognitive and motor learning principles (Brown and Mikula-Toth, 1997; O'Shea et al., 2020). Motor learning is defined as the process of acquisition or modification of a motor skill that comes with practice and experience, which leads to permanent changes in the ability to perform a movement (Schmidt and Lee, 1999). For people to learn a motor skill, they must practice and, as a result of practice, their ability to perform a motor skill improves (Schmidt and Wrisberg, 2004). In order to promote neural plasticity and address the alterations that happened as a consequence of brain damage (Hari, 1997; Kleim and Jones, 2008), conductive education provides a structured and planned learning experience that focuses not solely on motor function and performance (Hortvath, 2006), but specifically on active learning.

CE has been criticised in the past for lack of evidence-based research supporting the effectiveness of this type of intervention (Ratliffe and Sanekane, 2009; Tuersley-Dixon and Frederickson, 2010). More recently however, studies by O'Shea et al. (2013, 2015, 2013) and Bek et al. (2016) have shown promising results

of conductive programmes in the rehabilitation of Stroke survivors (O'Shea et al., 2020.)

Another criticism against CE has been the lack of theoretical foundations for its philosophy and methodology (Hur, 1997; Tuersley-Dixon and Frederickson, 2010). This paper aims to illustrate how CE intervention can be placed within motor learning theories and, in particular, how Schmidt's Schema Theory can be used to underpin the CE philosophical principle of creation of intention as defined by Hari (1997: 5) "Intention may best be described as an internal representation of what outcome is intended and how it will be achieved".

Schema Theory

A schema is a set of rules that provides the basis for a decision. It is developed by combining information from previous experiences to construct a rule (Magill, 2003) that can be applied to other related situations. Schema theory, based on the concept of a generalised motor program, therefore "defines a pattern of movement rather than a specific movement" (Schmidt and Wrisberg, p. 147). A motor program, however, is "a set of motor commands that defines the essential details of a skilled action" (Schmidt and Wrisberg, p. 131). According to schema theory, when people practice a particular class of movements, they acquire a set of rules (the schema) to determine the parameter values necessary for producing different versions of the action (Schmidt and Wrisberg, 2004).

After a movement is performed using the generalised motor program, the individual will store momentarily four different types of information:

1. Initial conditions, such as the position of the body (proprioceptive information);
2. Parameter values, which are the values assigned by the individual to the parameter of the generalised motor programme (e.g. time, amplitude and strength). They allow the individual to adjust a movement to meet specific environmental demands (Schmidt and Wrisberg, 2004);
3. Knowledge of results (KR): information available after the movement is completed, which indicates the success of movement outcome (Schmidt and Wrisberg, 2004);
4. Knowledge of performance (KP): the sensory consequences of the movement; this is information about the quality of the movement, such as velocity or acceleration (Schmidt and Lee, 1999; Schmidt and Wrisberg, 2004).

These sources of information are then combined into two sets of rules called schemas that the Central Nervous System (CNS) will use to produce different versions of the action (Schmidt and Wrisberg, 2004). It is crucial to notice that if any of these four pieces of information are distorted or missing, as is the case in individuals with motor disorders, it will result in degraded learning of the rules and, consequently, impaired motor performance (Schmidt and Lee, 1999).

The two schemas that emerge from combining information after a movement is performed are the Recall Schema and the Recognition Schema. **Recall schema** is used to initiate the generalised motor program to produce a movement. It requires minimal involvement from peripheral feedback and draws information from the initial conditions and parameter values; with each repetition of the movement using

the motor programme, new data is produced, and the schema is refined (Schmidt and Lee, 1999). **Recognition schema** is responsible for movement evaluation, and it is dependent on sensory feedback to determine the Knowledge of Results (KR) and Knowledge of Performance (KP). In preparation for action, the individual will select a movement outcome and determine the initial conditions; they will then use the recognition schema to estimate the KP, which will serve as the basis for evaluation once the movement is completed and the KR is available (Schmidt and Lee, 1999).

Schemas & Creation of Intention

Hari (1997) described intention as an internal representation of the intended outcome and the means by which to achieve it. These inner cognitive representations of intention can be interpreted as a person's schemas. From this point of view, CE aims to develop an individual's orthofunction (the integrated coordination of action and intention) by facilitating a restructuring of the individual's schemas via active and cognitive learning.

It is suggested that the cognitive processes in preparation for intentional action take place before the selection of the motor programme itself, and produce a conscious experience of intention as a result of this brain activity (Haggard, 2005). In people with motor conditions, this preparatory phase is affected, and thus they are unable to form an accurate inner representation of the intention. Consequently, they will issue the wrong motor commands (or select the wrong parameters for the motor programme) and will not achieve the desired goal (Hari, 1997). For instance, Parkinson's affects the basal ganglia, a region of the brain that produces dopamine and is involved in implicit learning and automatization of motor sequences.

Due to lack of dopamine, People with Parkinson's (PwP) therefore experience difficulties with both creating and initiating motor programmes (Nieuwboer et al., 2009; Doidge, 2015).

In Stroke survivors, motor learning is affected by brain damage, which can cause a loss of neurons in the motor and sensory cortex. Consequently, both the ability to plan and execute the motor programme are compromised (Kleim and Jones, 2008).

CE can, however, facilitate the creation of a mental image of the correct dynamics of the motor performance (the schema). Through guided exploration and discovery, the individual will be able to reshape those inner cognitive structures by experiencing success and learning the sensations connected to the correct movement or posture (Hari, 1997).

The Role of Extrinsic Feedback as Facilitation

Intrinsic feedback comprises all information that arises from the sensory systems due to movement, such as proprioception (Zwicker and Harris, 2009), while extrinsic or augmented feedback comes from an outside source, e.g. the conductor (O'Shea et al., 2020). As recognised, motor learning depends significantly on the accuracy of sensory feedback in order to compare and correct movements (Hari, 1997; Shumway-Cook and Woollacott, 2017). If a person does not have an accurate inner representation of intention (the schema), or when a person's intrinsic feedback sources are diminished or distorted, they will need extrinsic feedback to supplement their intrinsic feedback and achieve motor learning (Schmidt and Lee, 2009; Schmidt and Wrisberg, 2004; O'Shea et al., 2020).

In CE, we can consider facilitation as a form of extrinsic feedback to enable learning and develop orthofunction in the individual. Conductors will use facilitation to

increase motivation, reinforce correct performances, give information on errors, and suggest ways to correct them (Hari, 1997; Schmidt and Wrisberg, 2004).

For example, both postural adjustments before action and the anticipated final position are part of the motor program. However, if the pathways are disrupted, the individual will need augmented or extrinsic feedback in the form of preventative and corrective facilitation in order to create and use the schema successfully (Hari, 1997; Schmidt and Wrisberg, 2004).

Verbal facilitation is also used to support the learner to create a mind map and visualise where their body parts are in relation to each other; and to pay attention to how it feels when performing a movement or maintaining the correct posture (Hari, 1997; O'Shea et al., 2020).

Conductors will also praise effort, which influences the memory of the action and the experience itself. It is now well established from various studies that emotions modulate the strength of memory consolidation and that increasing motivation and attention are essential in motor rehabilitation, as stimulation of the reward circuit in the CNS promotes both motor learning and performance (Kleim and Jones, 2008).

Practical Examples

Participant A

Mr A is a 44 years old gentleman who had a stroke in his left hemisphere in 2010 and started CE in 2018. The stroke has affected his motor control (on the right side of his body), intrinsic feedback, and thought process. Mr B. presents with generalised right-side weakness, increased muscle tone in his right hand and fingers (he is able to grip an object but struggles with the release), and a lack of spontaneity of movements in the right arm. Because his proprioception has been affected, so are his posture and symmetry: as he tends to leave his right shoulder

behind when rolling onto his left side and he tends to step too far apart with his feet, heels turning inwards and toes pointing outwards, this is evident in lying, sitting and standing.

He is a proud, independent man who works hard during sessions and does not like to be helped or manually facilitated because he wants to solve the tasks independently. The stroke has also affected his thought processes, causing mild aphasia, so he can get frustrated when he is trying to express himself, and he struggles to find the words. Mr B. is hard on himself and struggles to recognise his progress. Because of this and his reluctance to receive manual facilitation, establishing a relationship of trust (i.e. intelligent love) and the use of psychological and educational facilitation have been essential to facilitate his learning process.

During the lying programme, participants are required to keep their feet slightly apart, with toes pointing up; the conductor offers extrinsic feedback in the form of prevention and correction of postural adjustment before action (the starting position for a task). When Mr B was asked to bend his ankle and point his toes up, he could not do so independently because of his spasticity and reduced range of movement in the right ankle. However, when asked to move his right foot slightly towards the middle by rotating his leg at the hip, he was then able to achieve and maintain the correct position independently. By providing information on how to perform a movement (rotate the leg) to achieve a goal (bend the ankle), the conductor facilitated Mr A. to use a recall schema already available in his CNS to move his leg based on the instruction given. He then used the recognition schema to evaluate his posture and symmetry based on the extrinsic feedback and the sensory consequences of the movement; thus creating a mental image of what he needed to do in order to achieve the goal - moving his leg to bend his ankle (Schmidt and Lee, 1999; Schmidt and Wrisberg, 2004).

The conductor also provided additional extrinsic feedback (KR) “well done, your ankle is in a much better position now”, which acted as psychological facilitation to increase motivation and reinforce the correct schema, or intention, to increase motivation and reinforce the correct performance. As the session progressed into the sitting and standing programme, Mr B. required less verbal facilitation to achieve and maintain a correct posture, only needing to be reminded of what he did previously and how it felt, instead of detailed instructions on how to do it. This shows that he was able to create and refine a schema to perform this movement successfully.

Participant B

Mrs B is a 67 years old lady who was diagnosed with Parkinson’s (PD) and started CE in 2018. She is an active person who enjoys yoga and Pilates classes. She always works hard during CE sessions, asking questions about the various tasks and showing a high level of involvement and commitment to her learning process. This inner drive and motivation are fundamental as it has been established that for neurorehabilitation to be successful, it requires the person to be actively involved and motivated (Kleim and Jones, 2008; Langhorne et al., 2011). The active involvement in one’s own learning is also at the base of CE philosophy and is represented by the principles of orthofunction and intention (Hari and Akos, 1988). The symptoms of Parkinson’s are caused by a lack of the neurotransmitter dopamine, which is responsible for the motivation-reward circuit (Doidge, 2015). As a result, it is especially important to boost internal motivation and reinforce the feeling of accomplishment with psychological facilitation for People with Parkinson’s (Brown and Mikula-Toth, 1997; Doidge, 2015).

Several studies suggest that motor learning in Parkinson’s is affected across all learning phases, especially during the automatised phase (Nieuwboer et al., 2009).

This is because the basal ganglia, where dopamine is produced in the brain, are responsible for creating generalised motor programmes that select and initiate complex motor sequences (Doidge, 2015; O'Shea et al., 2020). CE teaches people with Parkinson's to override the impaired automatic programs by using intention to produce conscious, purposeful movements (Hari, 1988; Hari, 1997; Brown and Mikula-Toth, 1997).

Mrs B. has a good range of movement. Her symptoms are mild and mainly affecting her right side: her motor issues include posture and symmetry, as she tends to lean slightly to the right with her trunk and head in sitting and standing, and she also holds her left shoulder higher than the right; a general slowness of movement, decreased arm swing, again more prominent in the right arm; and small writing (micrographia).

One particular motor issue I have observed when leading the writing programme was that her writing lacked fluency because she focused on the precision of the shape of the pattern and tried to reproduce it perfectly. This implied that she was selecting the wrong parameter values to apply to her writing schema. By providing educational facilitation in the form of prescriptive feedback and, more specifically, attentional cueing on the correct movement parameters, "try to use bigger movements starting from the shoulder and try to write more fluently without interruptions". Mrs B then wrote the pattern a second time; her writing was much larger and more fluent. This suggests that she was able to correct the parameters and refine her schema. Once I observed an improvement on her second attempt at the task, I provided psychological facilitation in the form of positive feedback to give her a feeling of success, increase her motivation and reinforce the correct performance. Mrs B. has shown a consistent improvement in her writing when given preventative facilitation to remind her to pay attention to her movements consciously.

This paper set out to illustrate the application of Schema theory and motor learning principles within a CE setting, providing practical examples from my experience as a first-year student conductor at NICE's adults' department.

Schema theory explains how we create, evaluate and refine our generalised motor programs to perform skilled actions (Schmidt and Lee, 1999; Schmidt and Wrisberg, 2004). These internal representations of the intended outcome and how to achieve it can be interpreted as what we call intention in conductive education (Hari, 1997).

Schmidt and Hari both recognised that active and cognitive involvement is necessary if learning is to take place. The CNS runs no motor program during passive movements, and therefore no schema can be updated. Similarly, without active intention, orthofunction cannot be achieved (Hari, 1997; Schmidt and Lee, 1999; Schmidt and Wrisberg, 2004).

It is well established from a variety of studies that motor learning processes are affected in individuals with neuromotor disorders, such as stroke or Parkinson's, because their sources of internal feedback are diminished or distorted (Schmidt and Lee, 1999; Kleim and Jones, 2008; Nieuwboer et al., 2009; O'Shea et al., 2020). By providing extrinsic feedback, conductors supplement the missing information to facilitate the creation of schemas and the correct intention (Hari, 1997; Schmidt and Lee, 1999; Nieuwboer et al., 2009).

The application of Schema theory in my practice placement has enabled me to understand my role as facilitator and leader of learning as a first-year conductor student. By recognising the need for experience, feedback, praise and prevention, I have been able to expand my understanding of my role in enabling learning in adults with neuromotor disorders.

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THE MYSTERIOUS WORD OF ORTHOFUNCTION

Judit Veperdi

This article was written for parents and other professionals to introduce the concept of orthofunction.

One of the most common questions I, as a conductor, get asked is: “What does the word Orthofunction exactly mean?” “I know that this is one of the key terms in Conductive Education, I’ve heard it so many times, but I don’t really understand what this word stands for. Could you please explain it to me?”

After a quick Google search, one will see that the word orthofunction is almost exclusively used in connection with Conductive Education. What’s the reason for this?

The answer is in the word’s etymology. This expression does not exist in English! It originates from joining two words from two different classical languages of science, Greek and Latin: **ortho** and **fūnctiō**.

Ortho is a Greek prefix meaning “straight”, “upright”, “right” or “correct” and **fūnctiō** is a Latin noun meaning “performance”, “execution of a task”.

The actual meaning of the word is “right performance”, “correct execution of a task”.

But does this relate only to the task series? Does *orthofunction* only mean that someone can perfectly execute the tasks we include in the “exercises” we are doing on those strange tables, the plinths? The answer is a definite no!

Orthofunction is one of the main goals of every conductor and other professionals working in Conductive Education: helping the individuals to become an orthofunctional adult who can conduct a more independent life.

Mária Hári, one of the greatest names in Conductive Education says ¹: “By saying that a person is orthofunctional we mean that the person is capable of performing an activity. One of the main objectives of the conductive educational system is the capability of the action, the teaching of how to solve a problem. [...] We need to achieve that the person living with a dysfunction be able to accomplish intentional actions. In other words, we need to achieve that the person want to intend to reach a goal, [...] to solve a problem. We need to activate their creative ability. [...] We need to help them to develop their sense of ownership.

CONDUCTIVE EDUCATION – A LOST PEDAGOGY?

Annamaria Berger-Jones

I researched into the history of conductive education (CE) with the quest to position it in relation to different models of disability, from a legislative/political angle, and in the wider context of Special Educational Needs and Disabilities (SEND). This paper is a repurposed submission I wrote as part of my doctoral studies; it has been shortened and edited to meet the requirements of the *Conductive College Journal*. I investigated CE's two-phased entry into the UK with the purpose to demonstrate that CE is an educational approach – more specifically, a transformative pedagogy rather than a treatment or therapy option as it is often portrayed.

In this article I also problematize CE: deconstructing its translated name, giving an overview of potential issues raised by the very little written heritage left behind by its founder and the impact of this on the profession today.

In order to successfully situate CE, its main characteristics need to be understood. CE is a structured and layered pedagogical system – helping children and adults with damage to their Central Nervous System (CNS) to create neuro-connections and teaches them how to apply their newly learnt skills (PCA, 2009; Hári et al, 1991). CE views individuals with neurological movement disorders as people who have difficulties with their ability to learn (Brown, 2006). In CE an active approach is applied to overcome difficulties, enabling people to achieve and succeed in life (PCA, 2009). CE makes learning accessible to all (Read, 1990) with a strong belief in individuals' potential to learn

regardless of their age, abilities or diagnosed condition (Medveczky, 2006; Hári, 1997).

Its practitioners – the conductors – are trained to have a positive outlook, to always look for ability, have high expectations and facilitate people to experience success (Brown, 2006; Cotton, 1994). Learners thrive if someone shows conviction in their abilities. The Pygmalion or Teacher Expectancy Effect, confirms that teachers' expectations have a direct impact on their students' level of performance (Szumski & Karwowski, 2019; Howard et al, 2015).

CE promotes the educational and the social inclusion of those living with a disability empowering not only the individual but also their families (Emerson & Holroyd, 2019). This notion resonates with the SEND Code of Practice, which places a strong focus on improving outcomes for children, young people and their families (DfE, 2015).

CE – a comprehensive and holistic system, was developed in Hungary in the 1940's (Fredrickson & Cline, 2009; Russell, 1994a); its founding father was Dr András Pető (1893-1967). He left very few published records behind on this dialectic method; there is speculation as to why. Pető kept developing and improving his system based on his observations and intuitions and was not ready to commit to any empirical research (Forrai, 2019; Maguire & Sutton, 2013). Another perspective is that Pető could not clearly convey the theoretical base for CE as it could not be systematically explained, he just knew it to be right (Maguire & Sutton, 2012). This rings true as some of Pető's beliefs and observational knowledge could not be

justified at the time due to lack of understanding of the CNS and its capacity. A political angle could be taken; Hungary was under occupation until the 1980's, the nation was oppressed and all intellectual property was claimed by the Soviet Union. Pető was pressurised by the Education Ministry to commit himself in writing; so an article was published in 1955, in which he named only Soviet theorists who influenced his unique philosophical thought. Claiming anything but the greatness of the oppressors could have resulted in his Institute being forced to shut.

From references to this article, it can be gathered that Pető did not explicitly give much detail, avoiding distortion and misinterpretation of his method. To my practitioner self, it is undeniable that Pető left a great legacy behind. On the other hand, my academic self, finds it highly problematic that there is not a clearly articulated theoretical and practical framework to draw on in writing from CE's founder.

My 'emerging' researcher self, would hypothesise that this historical issue stunted the desire for publishing, leaving the profession with a low academic profile. To combat this, I would invite and encourage conductor colleagues to take opportunities to write and talk to professional audiences, engage in CPD and post-graduate studies to help to increase our visibility in educational research.

Possibly as a direct result of the lack of publications, CE is not only marginalised in the field of education but is also on the periphery of SEND. Firstly, instead of being viewed as an educational approach, CE is often portrayed as a treatment. This claim is founded on a literature search of some key texts in the field of SEND. For example the 'SAGE Handbook of Special Education' (2014) and the book 'Key issues in SEN and inclusion' do not even mention CE as a differentiated pedagogical option. Conversely, in a book titled 'Treatment of Cerebral Palsy and Motor Delay', CE is discussed as an 'intervention strategy' without any conclusive evidence to support for or against its effectiveness (Levitt, 2010).

This completely disregards CE as a teaching strategy aiming to guide, enable, motivate and generate active learning (Read, 1995). As a practicing conductor with 15 years of experience, I have encountered many education and health professionals as well as members of the public who did not know where to place CE or indeed what it was. Problematizing and challenging my field could offer a solution to this; its name could provide a good starting point.

I would argue that the original name of CE, was not translated accurately leading to some misinterpretation; in Hungarian – 'Konduktív pedagógia' or as often referred to 'konduktív nevelés'. The word 'conductive' is from the Latin 'conducere', meaning to lead; it refers directly to the active nature of the teaching, which is concerned with guiding the learner at all times (Maguire & Sutton, 2004). It also highlights the conductors' job, which is to facilitate and enable individuals to find their own solutions (Hári et al, 1991). The words 'pedagógia' (pedagogy) and 'nevelés' (upbringing/nurturing/tutoring) refer to the system's holistic stance (Hári et al, 1991) and its wider scope than merely academic education (Maguire & Sutton, 2004). In other words, the conductor is a 'pedagogue who leads' (Maguire & Sutton, 2004). The language used influences the association society attaches to certain words and phrases.

CE challenges the medical model of disability and what is possible. The medical model is a negative, deficit model with its focus being on curing or treating people's problems and disability. It strips individuals' power away from their own lives and places it in the hands of professionals who decide on how best to meet their needs (Bartlett & Burton, 2016). Instead, CE is innovative and creative, putting the learner in the centre of the environment; enhancing activation and motivated participation from those, who are otherwise viewed as passive and unable in 'traditional' systems (Russell, 1994b). I posit that many of the medical model's views still influence the thinking of society today.

Individuals are labelled with words like 'having special needs' and 'disabilities'; words, which are deficiency focused. The Greek word 'dys' means bad or difficult (Wearmouth, 2017); instantly it gives any word it is placed in front of an adverse effect. A label attached by professionals becomes a status for those it is given to (Thomas & Loxley, 2007). In order to move away from the negative connotations, a new way of thinking must be given way to. CE provides the learner with a positive and transformative learning experience (Russell, 1994b). Cotton (1984) highlighted how well the British system is able to improve the physical, speech/language needs of children with cerebral palsy yet fail to offer continuity or reinforcement of skills. This is where the strength of CE lies, by viewing motor disorders as a problem with learning. The method recognises that skills not only need to be taught but opportunities must be created for their practice in various situations (Cotton, 1984) until individuals are able to spontaneously transfer their learnt skills.

Ultimately, the aim is for the learners to become active problem-solvers, to feel confident and to take ownership of their newly learnt or regained skills (Maguire & Sutton, 2004; Read, 1990). In CE, the specific terminology to express this transformation in the learner is called - orthofunction. In contrast to 'dysfunction', orthofunction as a concept, embraces the idea of the person growing in confidence, feeling part of society and therefore becoming empowered (Emerson & Holroyd, 2019). It refers to the change in individuals' attitude to learning, their newly found ability to problem-solve and work towards their uncapped potential with confidence (PCA, 2009; Hári, 2008) - hence why I present CE as a transformative pedagogy.

Transformative education cannot happen overnight, it does not offer a quick fix. This inevitably invalidates the neo-liberal model's values, which are outcome and performance focused (Archer, 2008).

The neo-liberal model of education is characterised by a privatised consumer society model, which places focus on productivity (Harvey, 2019). Ball (2017) talks about 'knowledge economy' - the role of education in a neoliberal system is to ensure economic productivity. Therefore education is for the economic benefit of the state rather than for the social good; this strips all intrinsic value away from education. The neo-liberal model is very much evidence based (Ball, 2017) whilst CE is process orientated. Education is treated like a product with a high value return where teachers and schools have to decide how to best invest their time and resources to get the best returns (Ball, 2017); this is unlikely to be those with SEND. Generally the children accessing CE, would be the ones deemed as 'adversely affecting the education of others' and therefore could not be catered for in mainstream classes (Abbott et al, 2013). As crudely put by Reilly (2005: 63): "CE works with people who offer little if anything of economic value to society". CE is labour, time and resource intensive without a quick return or an obvious increase in performance and as such does not fit into what Ball (2017) calls the 'investment model'. By not offering opportunities and not investing in people with impairments, the system makes them disabled through discriminating them from even having experiences (Armstrong et al, 2010).

CE arrived in England in two phases. The first phase was in the 1960's when a physiotherapist, Ester Cotton working for the Spastic Society², came across CE. Cotton referred to what she saw as "profound and ingenious" (Cotton & Parnwell, 1968: 50). CE challenged what was considered medically possible for children with cerebral palsy. However, these attempts remained localised, focusing only on children and the method was not systematically developed. Cotton (1994) highlighted that CE was received with scepticism and hostility. I would argue that for a colonising developed Western country it would have seemed impossible that Hungary, a communist nation from Eastern Europe,

² Now SCOPE - a charity supporting those living with or affected by cerebral palsy.

could have possibly advanced something worthwhile that has not been thought of already. The Semmelweis reflex, ironically named after another Hungarian, could have played a part in CE being rejected. It describes a tendency in behaviour, which prefers to stick to well-known beliefs instead of welcoming new ideas (Gupta et al, 2020). The British education system was not ready for a change just then. Children with a 'disability of body or mind' had to be identified and provided treatment for in special schools or elsewhere as mandated by the 1944 Education Act (Abbott et al, 2013). Still in the '70s some children were deemed as 'uneducable' and therefore were in the care of the Department of Health rather than Local Education Authorities (Wearmouth, 2017), which shows that these children were considered as not capable of learning therefore viewed as having no potential.

Believing in people's potential to learn despite the specific obstacles in their way are not unique features to CE. Many strong parallels can be found between Professor Feuerstein's and Dr Pető's philosophies and methods despite their differences in orientation. "Both Pető and myself had announced and declared our belief in human beings' capacity to modify their level of functioning." (Feuerstein, 2012: xix). Professor Feuerstein's (1921-2014) theory of Structural Cognitive Modifiability was developed to primarily help immigrants, refugees and those with learning difficulties to resolve emotional and intellectual problems by learning to learn and adapt to change (Feuerstein, 2012; Minnis, 1990).

Both men felt it imperative to create the desire to learn as a prerequisite for learning to take place - the focus being on the learning process. They both emphasised the importance of the pedagogues' role in guiding the learner to find their own solutions and the importance of the environment so it can reinforce what has been achieved. Pető stressed that the environment facilitates the creation of the right stimulation to challenge and motivate the learner and to give

them opportunities to succeed and support their learning further (Russell, 1994a).

Feuerstein (2012:xxi) sadly reflected on another parallel: "Both our theories were considered by the majority of biological, medical and educational scientists as totally incongruent and inconsistent with dominant views of the fixity of human traits and the un-changeability of the level of functioning." Western thinking on child development in the 20th century, was mostly influenced by Jean Piaget, a Swiss psychologist, who talked about 'readiness' to learn proposing a 'stage theory' (Bartlett & Burton, 2016). In contrast to Pető and Feuerstein, Piaget's views suggest that change cannot happen if a child has passed the stage where learning should have occurred therefore it limits their potential. This suggests a belief that the difficulties lie within the children's pathology (Thomas & Loxley, 2007) while in CE the impairment is viewed as a block in learning, which can be removed through conduction.

Since the development of these two transformative pedagogies much has changed in educational policy, societal views on disability as well as scientific knowledge. One of Pető's, then scientifically unexplainable beliefs, was placed in the CNS's ability to reorganise itself, if provided with the right circumstances. This was highly criticised and even resulted in an accusation that CE did not have a sound theoretical underpinning (Oliver, 1989). At the time, neuroplasticity was not articulated in a scientific manner, so Pető's foresight could not be proven correct until decades later; but what he intuitively, or I would say, observationally understood to be true, is now a well-documented fact and is applied in many disciplines. This notion leaves a sense of intrigue behind as to wonder what else this visionary man could have been correct about all along.

The second, more explosive and strategic phase of transferring CE in the UK was in the '80s. Importantly this was after the 1981 Education Act, which introduced the term special educational

needs to replace the previously identified 11 medical categories used to determine children's 'handicap' (Wearmouth, 2017). This was a clear move away from the medical deficit model, which dominated education policy from the 19th century. The needs of children were to be decided not solely by medical professionals but with the input of education specialists. Further to that, parental wishes regarding their children's education also had to be considered (Bartlett & Burton, 2016). This change signalled a shift in starting to treat parents as consumers appraising neo-liberal values. The newly ignited interest in CE, was sparked by Andrew Sutton, an educational psychologist (Read, 1992). He was responsible for a BBC documentary³ showing at prime time in 1986. The programme was the start of a public awareness campaign giving parents a different option, which did not view disability with passivity (Maguire & Sutton, 2004; Read, 1992).

There was unprecedented interest with an influx of British families travelling behind the Iron Curtain to see the 'miracle' of CE (Maguire & Sutton, 2004). The curiosity of the press and its positive and inspiring portrayal of CE proved to be damaging in the long run; their focus was on children being cured and being able to walk after visiting the Pető Institute (Reilly, 2005). The system was being compared to treatments already available in the UK, rendering those therapies as negative, aphetic and unfairly dismissing the work of therapists (Patrick, 1989; Beach, 1988). This was against the efforts of Sutton (1988) specifically emphasising that CE was neither a therapy nor a cure, but a system of education. This was echoed by three paediatric neurologists after their visit to the Institute in Budapest reporting that: "the essence of conductive education is that it is education", solutions are not given as it would be in a case of treatment, rather individuals are motivated to find their own ways to problem-solve (Robinson et al, 1989: 1145). Therapists were treating CE with scepticism and in some cases defensiveness and negativity

(Read, 1992; Beach, 1988). The medical profession wanted hard evidence of the effectiveness of CE despite it being a pedagogic approach and the lack of scientific evaluation in general regarding treatment of motor disorders (Beach, 1988).

I selected one critique in order to highlight damage done by publications. I would like to defend CE against a damning article from 1989, written by an influential academic in the field of SEND. The author was Mike Oliver, a white, Western male who campaigned for disability rights and coined the phrase 'social model of disability'. To understand his positionality it is also important to note that he was a wheelchair user as a result of an acquired spinal injury (Fredrickson & Cline, 2009; Oliver, 1989). Oliver's criticism was concerned with the term orthofunction. He understood its aim to be the 'normalisation of the disabled' and its intention to be the creation of will in order to learn to carry out activities such as walking (Oliver, 1989). From his perspective it can be understood why Oliver reacted so negatively to this, through his subjective lens the ability to walk did not correspond with the willingness to do so. As an advocate of the social model of disability he rejected ideas of 'normality' and demanded society to change and remove barriers to include a person with any ability (Armstrong et al, 2010; Fredrickson & Cline, 2009; Oliver, 1989). From his view, CE grossly misrepresented those it claimed to serve.

I argue the above to have been a misguided interpretation of a misunderstood concept. Orthofunction is half of a binary; the other half being dysfunction. The term dysfunction refers to disorder of function (Hári, 1991). It is the dysfunctional organisation of movement that leads to disability and feelings of failure due to having an uncoordinated body, which inevitably leaves a person with low confidence. The dysfunction can be improved and dealt with, but the impairment remains (Maguire & Sutton, 2004; Russell & Cotton,

³ Standing up for Joe

1994). Orthofunction is the ability to function effectively despite the dysfunction. It refers to intended, purposeful and conscious activity (Hári et al, 1991). In essence, orthofunction is not concerned with changing a person's disability as Oliver viewed it. The opposite is true - CE views individuals as complete, who have difficulties with controlling their bodies. Orthofunction does not refer to physical independence rather, independence of thought, self-respect, self-confidence and ability to problem-solve (Russell, 1994c); to achieve this one must experience success through conduction.

The aim of this paper was to provide a historic overview of CE, focusing on its two-phased entry into the UK through a political/legislative lens. I offered a rationale and some evidence for aligning CE to education, presenting it as a transformative pedagogy rather than a treatment option. CE needs further contextualising and theorizing in order to correctly situate it in the 21st century rather than leaving it rendered as a lost pedagogy.

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★ PRACTICE BASED REFLECTION OF THEORY ★

REMOTE CONDUCTIVE EDUCATION AT STEPS - MY EXPERIENCE AS A MEMBER OF STAFF AND AS A STUDENT

Reka Simandi

Introduction

When the country went into lockdown in March 2020, I was approaching the end of my first year of studying Conductive Education. My practice placement and workplace, Steps Conductive Education Centre in Leicestershire, responded to the impact of the pandemic immediately and we started to work out how we could continue to support the families without putting the vulnerable children in danger. Therefore, we adapted our sessions for remote delivery and have been providing structured sessions online since April/May 2020.

I wanted to share my experiences of this because, despite our initial scepticism, I think we have done a brilliant job of transferring the whole of Conductive Education to the online learning environment (rather than just the aspects we thought would work). Furthermore, it works! From my perspective, the children and parents learn and develop just as effectively in remote sessions, some even more effectively.

I led and facilitated in online sessions for parent and child groups as well as our one school-age group throughout my second year of study. As a consequence, my confidence, observation, and “use” of the conductive group have improved massively.

Therefore, I would like to discuss what I learnt from taking the Conductive Education methodology online, as well as some benefits, challenges and solutions.

Before Lockdown

Prior to the pandemic, children were able to attend one session (half a day) per week. The typical daily routine included free play, circle time/assembly, a lying task series, snack time, topic specific play, sitting, standing and walking task series, and more walking tasks and free play out in the playground. It was quite exhausting being involved in the many parts of the session, especially with as many as ten children attending some groups. It was also a very loud, busy environment and there were a lot of facilitators in every part of the session, sometimes three in addition to parents, just for snack time.

Methodology in Remote Conductive Education

Role of the Conductor

Motivation is difficult anyway, but as a second year student leading an online session, it came with completely new challenges, for example the older, more mobile children who simply leave the room when they are not interested. The solution to the problem of motivation was better observation and planning in a lot more detail. I learnt that the leader needs to observe both the personalities and the moods in the group and plan how they will connect with each individual and keep them engaged.

The atmosphere can help with keeping the children engaged but this is also difficult to create online. Although encouraged to 'unmute' themselves and speak whenever they wish, all the participants are 'muted' during the task series in order to prevent microphone feedback/echoes and ensure that the task and rhythmical intention can be heard. This means that the leader must keep talking throughout the session in order to maintain the atmosphere. A lot of confidence is needed to do this and the Conductor must keep herself in this confident state even if children are not participating, otherwise she will have no chance of bringing the group back together. I learnt to keep myself "in the zone" and worry about everything that went wrong once the session was over; keeping the children engaged has to be the leader's priority in order to achieve any learning.

Conductive Education should always be enjoyable but online, I found that the leader has to make it even more fun and relaxed in order to motivate children to take part from within their own homes. At Steps we did this by allowing the young people to use the chat function on Zoom, for example some sent sums for the leader to solve in order to tell her how many children

were there. We also learnt how important it was to let the children have the fun they wanted to have because it taught us a lot about their personalities. For example, one day a child had an 'alien' as his background during news time. Another day, somebody had a life-size cardboard cut-out of Shawn Mendes in the room with her and picked it up and started carrying it around during the walking tasks. We allowed this and even included 'Shawn' in the group to further increase the child's motivation. As a result I found myself providing feedback to cardboard Shawn Mendes as well as the participants! This relaxed environment that we worked out how to create, worked wonders for the school-age children's active participation, and gave us greater insight into the children's motivations and influences.

In Conductive Education, we utilise a social constructivist theory base; children have to interact with the leader and each other in order to learn and develop their personality. However, I found that the school-age group, who were all verbal, were very reluctant to speak to myself and to each other in the online environment. I did not know why this was, however I recognised that I also felt more challenged in this online 'reality'. I reflected that I really connected with this group and made them laugh when they had been attending face-to-face sessions, so I told myself, surely the whole situation is less terrifying when nobody is actually in the room with me.

It may sound strange but I overcame this problem by putting myself in "confident mode" whilst actively trying to come across as authentic 'me'. Once I was able to be myself (or at least fake being able to be myself), the children in the group had the confidence to be themselves. This gave me confidence to adapt my facilitation e.g. subtly facilitating the interactions that I wanted to happen between children, for example asking them to show each other their toys on the screen to facilitate the beginning of a spontaneous conversation.

The Conductive Group

The first point to be made about the online conductive group is that it is in fact possible to keep the group together (even though physically the children are apart) and use it to create learning opportunities. Of course it is more difficult for the leader to create the benefits of the group that she seeks, for example social interaction, motivation, healthy competition, comparators, and role models, but it can definitely be achieved with a little additional effort and consideration. The solution for me was to improve my planning to include everything I needed to say to the group to keep them together. One of the most significant things I learnt during my year of delivering Conductive Education remotely, was that the benefits of working in a group do not just magically appear, especially not online; the leader and facilitator(s) have to make it happen. Sometimes, to keep the interest of the group, I had to give the children a lot of freedom in terms of how they completed the tasks.

I was concerned that this would have a negative impact, however, this was not the case at all. In fact, it was highly beneficial for the development of independent problem-solving skills and progression towards orthofunction. In the school-age group, where parents have minimal involvement, differentiation of facilitation and aims had to be very precise. To create shared success, we often had to ensure that every individual could succeed without manual facilitation because, at times, no-one else was in the room with the child.

Daily Routine

The typical daily routine for an online Steps session is circle time; lying, sitting, standing and walking task series; a game or a challenge; individual feedback; sharing news; goodbye song. These sessions were actually not that different from the face to face sessions, in terms of opportunities for learning and applying skills,

however the time for these online sessions was only an hour to an hour and a half, compared to the face-to-face sessions which last around two and a half hours. The only tools the leader has to teach with in the remote context are language and demonstration, there is nothing else she can do to help. The leader therefore has to be clever about how she creates opportunities for learning onscreen.

In face-to-face sessions before lockdown, children did get individual feedback from the leader at the end of the task series but it was rarely more than a sentence per child. In remote CE sessions, feedback was a much more structured part of the session; the leader would provide group feedback, then give feedback to each individual, asking the facilitator and parents to share their observations too. Receiving detailed and specific individual feedback really helped the children to feel proud of their own and others' achievements. This then had a knock on effect on motivation as everyone in the group was able to feel important and valued.

Task Series

As the country went into lockdown during my first year of study, I had not lead any task series face-to-face. Therefore, I observed and learnt from the conductors at Steps and used my reflections and their feedback to help me develop my teaching style.

For most groups, it was possible to deliver all task series (lying, sitting, standing and walking) online. In order to achieve this, the parent/carer had to be given appropriate instruction on how to facilitate and what equipment from their home could be used within the session. To assist with this process, and enable every child to participate from home, we sent "magic boxes" to each child by post. These boxes contained bells, a rod, and a ring, but not much else. For me this reinforced the idea that equipment in CE can and should be multi-purpose;

lots of furniture and items in the home can be used as physiological facilitators. Everyone has chairs in their home, whilst the Yellow Pages or other books can be used to create footboxes of the appropriate height. The opportunity to demonstrate that everyday furniture and household items can be multi-purpose, expanded perceptions and increased creativity and independent problem solving. One parent even found a way to keep her child's feet flat when lying in supine: by having him lie down so that the bottom of his feet were against the side of the sofa.

Rhythmical Intention

In these online sessions, the rhythmical intention was provided solely by the leader in order to prevent echoing or a delay between multiple voices. In order to support the leader with this, the facilitator used her non-verbal communication to help find and adapt the rhythm appropriately. For example, they could move their hands apart and together in the rhythm that she perceived the leader should adopt based on her observation of the group. The facilitator's observations were extremely valuable; she was much closer to the screen than the leader who had to be further away in order to be seen fully while demonstrating the tasks. The children's movements had to be observed closely in order to use the rhythm to ensure everyone was working at the top level of their potential at all times therefore; the bigger or closer the screen, the easier this was.

Facilitation

To enable participants to feel successful and experience a sense of belonging in online sessions, I give constant feedback that is linked to the group and individual aims and get the group to help each other with their aims. This facilitates interaction as well as creating opportunities for role-modelling and peer learning but, most importantly, is an excellent strategy to keep the group together and focused on what they need to learn.

In remote sessions, only one facilitator is needed. This suggests we may have been over-facilitating in our face-to-face sessions, or not letting the parents do enough. In a parent and child group, the parents should be learning how to facilitate their child's learning and perhaps they were not learning as much as they could have if there had been fewer facilitators around.

Online, most facilitation is provided by the leader, however the facilitator may still facilitate the children if she has a suggestion to make. The main role of the facilitator is to observe the children sufficiently to support the leader in giving feedback and adapting her teaching 'in the moment'.

Some may believe that conductors cannot provide manual facilitation remotely but I believe that, indirectly, we have been able to provide it. In parent and child groups, we suggest and explain to the parents how to facilitate their child. Perhaps one of the most significant aids to this process was the 'demonstration doll'. The demonstration doll is a regular doll, but with malleable limbs. Use of this doll enabled the leader to demonstrate how to facilitate the child, using the concept of enabling rather than caring. It took some time to learn how to use the doll to teach the parents, however once I felt confident with this, it became a highly valued tool. It also meant that I did not have to lie on the floor and demonstrate all the tasks myself.

In the school-age group, we observed the equipment and furniture in the children's homes and gave suggestions of what the child could use, thus providing both physiological and educational facilitation. We were able to break down tasks based on the space, equipment and family members available to facilitate. I discovered that many children could manually facilitate themselves; for example, some children who could not put their foot up onto the opposite knee, could initiate the movement and then use their hands to pull it into the correct position.

Observation

Although onscreen, it was only possible to observe the children in 2D in a small square, with good communication between the leader and the facilitator, it was still possible to observe for everything we needed. Delivering online sessions has certainly sharpened my observation skills, but I can now identify several advantages to on-screen delivery of CE. These include being able to 'see' the whole group in one place at the same time, which has helped me reflect and become more aware of whether I am really keeping the group together, or if/when I need to adapt my teaching.

Other factors that impacted my observation of the group related to the number of children it was possible to work with, for example the more children on the screen, the smaller the image. When I started leading sitting, standing and walking, fitting myself into the screen made me too far away to see the children well enough. This problem was resolved by the very large screen that had been installed at Steps: basically a big TV with its own computer and camera. Now we regularly use the large screen for both fully digital and blended sessions. As I mentioned above, the larger the screen, the easier it is to lead a good session. As observation guides everything we do, being able to observe better and more easily dramatically improved my feedback, facilitation and all aspects of my leading.

Learning Environment

One aim of CE is to enable children to apply their skills to different environments, which includes their home. One advantage of remote CE is that we can 'see inside' the child's house; we can provide advice regarding home applications immediately and we have the opportunity to observe how well skills are applied within the home environment. Furthermore, some children attend digital sessions from mainstream school, with a one-to-one or teaching assistant. The impact of this is not only that the children

miss less school as they do not have to travel, but also that we can help them to apply skills and problem solve in their school environment. For example, it seems very important to me that children can sit correctly on the chairs they have at their school and are able to change their shoes and similar. This was not something we were able to do when sessions were purely face-to-face, so this opportunity is one of the unexpected advantages of online CE sessions.

A big advantage of the online learning environment is that it is much calmer than a face-to-face session due to the convenient 'mute' button which can be used to prevent 'crying dominoes'. Similarly there are disadvantages, the main one being technical issues which must be solved quickly whilst trying to keep everyone happy and engaged.

Steps as an Online Practice Placement: Personal Reflection

I had a lot of fun learning to lead task series remotely, the demonstration dolls were completely new to us and took some time to get used to. I distinctly remember feeling very strange practising the task series alone with the doll but it was necessary and improved my ability to demonstrate.

I did both my second year practical exams remotely and both went very well so I think that proves that a student's skills can be developed online as well as the participants'. I have also been able to apply theories to digital practice; Maslow's Hierarchy of Needs was particularly helpful in learning to motivate the older children for my Semester 2 exam, and of course it was very good to be able to motivate children during a pandemic because most of the population had experienced a decline in motivation due to the isolation brought by the lockdowns. I am very excited to lead a face-to-face session and much less scared now because I feel I have already done something much more daunting.

Conclusion

Remote CE can be highly effective, and it is possible to include nearly every element, including using the Conductive Group to facilitate learning and development. Our remote sessions thoroughly reinforced the importance of constant observation as well as improving our observation skills.

We have now partially returned to providing face-to-face sessions but are continuing to provide online sessions too because they work so well and additionally enable participants who are not local to attend. We have also started providing blended sessions which have been highly convenient for people who live far away,

but also for those who are unwell, or those who simply do not have time to travel to the centre. The blended sessions are very new to us at the moment but I am sure they will bring even more learning opportunities for both the practitioners and the children.

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CONDUCTIVE EDUCATION; IT IS THE *HOW* NOT JUST THE *WHAT* BUT MOST IMPORTANTLY IT IS THE *WHY*.

Natalie Walker

It seems that for years other professionals and those researching have been under the impression that the focus of Conductive Education is on the skill but not how the skill is being developed. The view that we are teaching skills like walking without any thought to position, posture and gait is incorrect. This is a mis-understanding which has developed due to language barriers, media focus and a general lack of understanding of the basis of Conductive Education.

On the other hand, the idea that Conductive Education is about 'normalising' a child/adult with a neurological movement disorder is also incorrect. Both completely miss what Conductive Education is trying to achieve and how.

Conductive Education is not about normalising or appearing 'normal'; it is about teaching someone how to get the most out of their body to be able to do what they want to do. It is also about developing their motivation and interest in the world around them so that they want to take an active part in it.

In Conductive Education we use a carefully built task series - a series of tasks broken down and built up; each task given rhythm, prevention, corrections and facilitation (support) to ensure success, position, symmetry and active movement. Tasks are built to work towards each individual's aims and carried out in a range of positions - from lying (the easiest position as gravity is on your side), sitting, standing and walking. Intention, given through the spoken task, supports the ability to plan and carry out a conscious movement and a condition specific

rhythm given to allow for the greatest range (ROM) and a smooth steady movement.

Task series are built into a carefully planned daily routine (the routine of the session or day) which gives time and importance to putting skills into practice during purposeful and motivating tasks. These are incorporated into the session/daily routine depending on each individual's age and interests.

For a Conductor planning the daily routine and the tasks and activities within it how does the focus on the 'why' impact on what I may build into it? And how has this changed over time from a newly qualified Conductor to a Conductor with 13 years experience? As a newly qualified conductor, my focus when building the daily routine and the series of tasks within it was primarily on the participants' physical aims and tasks which would develop these skills. A focus which has evolved over 13 years to think more deeply about the child's/adult's interests, personality and family life to develop interest, motivation and spontaneous purposeful active movement.

For a young child the 'why' will be based around play - developing an interest in the world around them and their motivation to impact upon it. This may be through sensory play, musical instruments/toys, action songs, building toys, switch adapted toys or cause and effect toys. The key is finding a child's interests and then presenting an activity in a way in which they are encouraged to use their physical movements, choice making and communication skills to participate.

For many of the children (of all ages!) playing with a simple toy such as bubbles presents a fun activity where interest, motivation and a want to participate can blossom. Skills from head control and tracking, to initiating movements with hands and arms and sitting balance can develop and fun can be had with friends in a social group situation. The group setting itself adds a motivating element. Playing and taking part in a task or activity in a group with peers has a whole different atmosphere to a session where the child is surrounded purely by adults.

Following discussions with conductors working within different settings, services and age groups through last year's Conductive Education CPD workshops how the 'why' is built into the daily routine can be done in many different ways but its importance was paramount for all. From the toys and games implemented into the task series itself e.g. following a task to separate index fingers a game of popping bubbles or specific time within the daily routine given for free play/arts and crafts; time to develop interest, motivation and will to try was given great importance.

The development of activities such as the 'ChallengeMe' cards, by conductors (available to buy and use at home or within Conductive Education or therapy sessions) show a wider need for specific movement based challenge games for older children. We have trialled the online version within our teenage groups as additional tasks/games within sessions. Our teenagers are motivated and enthusiastic to take on the challenges as a team encouraging

each other to achieve while playing a game which provides specific tasks which work towards their individual aims.

For those individuals who are developing their walking skills, practicing walking for the sake of practicing walking only provides purpose if the individual has a walking goal in their mind that they wish to achieve. A recent example is a young woman with Athetoid CP who attends our service whose dream was to walk down the aisle on her wedding day. A dream which, following an incredible amount of determination and hard work she achieved! In general for the children we work with, walking isn't something they want to practice for the sake of practicing it; however, transitioning from the carpet to the snack table across the room is purposeful and motivating. There is a reason to put the energy, planning and effort into practicing walking - because it has a use. It can get you where you want to go!

In brief the 'What' (the movement) and the 'How' (how it is learnt and carried out) are both important and planned carefully in our task series. However, even more important is the 'Why' as without the purpose and reason to take an active part in a task, in a movement, in an activity, what learning will occur? What skills can be learnt and transferred into everyday life? If a skill is learnt in a session but is never put to use spontaneously what was the aim of teaching the skill?

TRANSMISSION TO A NEW DIMENSION WITH CONDUCTIVE EDUCATION AT MOVE & WALK IN SWEDEN

Zsofia Nadasi ⁴ – Gabor Borics ⁵ – Rita Toth ⁶ – Eszter Horvath Tothne ⁷

Introduction

Move & Walk is the largest Conductive Education (CE) centre in Sweden, located in Gothenburg, Malmö and Solna. The institute's different CE business areas welcome and develop both children and adults with various neurological motor disorders.

The owners most important goal is, to spread and extensively receive approval for Conductive Education in the different sectors of the society

This study summarizes the professional decisions and compromises that were made during the Covid-19 pandemic, together with the steps of the process and their results.

Presentation of a Proactive Strategic Work

Already in 2018, the management of the organization examined the possibilities that could serve as a solution to the changes in the social tendencies of that time and to the newly formulated needs of the families.

First of all, there has been a strong demand from participants and families wanting to reach CE program where and when it is most suitable for them. In addition, they would like to receive the development program close to home, as well as available support between two periods or occasions of conductive education.

Second of all, it has become clear that the development of modern digital technology allows long distance contact like never before. The presence of online activities such as net-surfing, games, virtual realities, and the daily use of digital devices just made us braver to carry on.

Third, as a centre for Conductive Education we had to realize that we may lose participants in programs if we are unable to provide CE program in the most appropriate place and time for them.

The management's goal was to find and introduce a form of service that can be implemented with digital tools with which it can continue to offer quality Conductive Education programs to those who need it.

This motivated us to organize an internal professional review. After our goal has crystallized, we defined our questions, which we sought answers to.

At the beginning of the study, we assumed that the CE program organized, planned, and then conducted online by a conductor, would also be successful for the participant joining the program from his or her home.

Most probably for the success of any online CE program we must adapt and alternate many elements of traditional CE such as: preparation, planning, implementation, leading techniques, and evaluation methods.

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The results obtained during the study would have served as a preparation for an online solution to be introduced at a later stage, which we could have applied to all our units.

Consequences of the Unexpected

The first patient of Covid-19 in Sweden was diagnosed on 31 January 2020. The Public Health Office constantly informed the society through its experts, drawing attention to the importance of prevention, different ways of protection, joint and individual responsibility. Despite all these precautions, the number of infections has increased. The health information at the time clearly conveyed that people living with certain diseases belong to the so-called risk group (Public Health Agency of Sweden).

In 2020 the management held frequent meetings where they updated on the latest national and regional news and statistics was analysed, during the period from February to July the management held the meetings daily and from August it was held weekly. Alongside they introduced mandatory hygiene routines and general guidelines in all three institutes which served to protect our clients and staff. All individual business areas prepared several action and crisis plans, that could be utilized immediately or within a short deadline.

Further we present the four areas most common and crucial actions made during the pandemic, that affected the realization of the Conductive Education programs.

Our department responsible for delivering **interval Conductive Education programs** has since the start in 1997, welcomed families for conductive development for periods of 4-6-8 weeks. In Solna and Malmö the participants are non-resident within our facilities, however in Gothenburg there are residents available for rent in our facilities.

This is in large extent financed through contracts with the regional health authorities, which enables most families to access our services once a year free of cost.

Conductors plan and lead daily programs primarily in groups, sometimes individually at all three of our locations. Sessions are held for 2-3-4 hours a day, which is regulated by the terms of the contract and the needs of children and adults.

Gradually, from March 2020, all three major regions authorized all contracts, even if the sessions were not held at our locations but online. In October 2021, the online alternative is still available or optional when participating in interval, intensive conductive programs at all three Move & Walk locations. The Malmö and Gothenburg contracts are valid until 31 December 2021 and the Stockholm contract until 31 October 2022.

A Conductive Special Primary & Secondary School

A special primary school and secondary school based on conductive philosophy can also be found in all three cities. Our school combines a special school curriculum with the constant presence of conductive education.

All our students - age between 6-20 years - live with severe intellectual and communication difficulties, various syndromes and/or autism spectrum disorder beside cerebral palsy. The students belong to the covid-19 risk group according to statements from the Public Health Agency of Sweden.

In the second week of March 2020, the Move & Walk schools made the decision to start digital education in all three of our locations from March 16th. The decision was fully agreed and supported by the city and county education authorities.

Adult activity centres currently operate in Gothenburg and Stockholm, and this social service is free of charge for occupants with the support of the municipality of residence. Young people with various disabilities and problems come to work with us, their daily routine is based on conductive principles.

Of course, when the epidemic broke out, these young people were also at risk. The leadership of the capital has decided to close such institutions as adult activity centres for as long as the health situation requires. Other regions let the locations to remain open. Therefore we had to close the Stockholm branch between March and July 2020. Gothenburg stayed open but we offered an online presence as an alternative.

Personal Assistance Unit with Conductive Education Content

This unit of Move & Walk is integrated into the social care system and employs personal assistants. At this unit the main task of conductors is to help families by adapting Conductive Education to the home or school environment. In addition, the training of helpers working for us as personal assistants have started the most important content of which is the interpretation of the holistic approach of Conductive Education and the application of conductive facilitations in the home environment.

During the period of the spread of the covid-19 pandemic, personal assistants had a greater task than ever before. Of course, this unit of ours has been operating with full force throughout, the management of the company has taken priority measures to ensure the protection of the residents at home.

Conductors have been in online contact with families and assistants and training has been transferred to digital form from March 2020 to the present day.

Our Experience After the Two Studies

In the following, we present our proposals made after the first study organized in 2018, as well as our results summarized in September 2021, and the conclusions we have drawn

During the first internal study, we organized fourteen pilot sessions between May and August 2018 in our schools. The events were organized, planned with different technical tools and in different implementations.

Each occasion followed the course of classical conductive sessions in both individual and group variations, we filmed the sessions too, which of course, were used only during the analytical work.

Two types of questionnaires were prepared, one was completed by conductor colleagues leading and facilitating the session, and the other was completed digitally each time immediately after the session by program participants and their home facilitators.

In addition, after each study session, we provided an opportunity for the leader, facilitator, and observer colleagues to share their experiences orally by answering questions. What was said was recorded. Our summary at that time was made after nearly 100 experiences and opinions. During the analysis, we grouped the formulation of similar and different experiences and then edited them according to topics based on the already known codes.

In the second study phase, we made nearly 20 interviews with conductors from each unit involved in the planning and implementation of online programs launched in March–April 2020. The questions were about the impressions and professional conclusions of colleagues.

In addition, we sent out a questionnaire to all affected families who had been participating in online sessions since March 2020.

The short set of questions asked about the experiences of facilitators and participants.

Our Proposals After the 2018 Preparatory Study

As a preparation of the online program, it is definitely worth having a meeting in the digital space, even if the participating family has previously participated in a conductive program within a traditional framework. This is when goals, a preliminary program, tools can be agreed, and technical tools can be tested.

It is also necessary to discuss the following: the choice of location at home, the furnishing or relocating the furniture to rule out any distractions during later sessions, including even sunlight.

It is important to specify which toys will be used during the program for children or what can we replace short or long sticks, bean bags or other tools that the participant is well acquainted with based on previous experience.

It is also worth having a consultation just before the online program, when discussing the program in general, we also discuss some certain program elements with the participants.

The most important of these is positioning, which specifies from which side, in which position the program leader wants to see the participant in lying, sitting, or standing positions.

In several cases, it is necessary to zoom in a specific part of the body with the camera, if possible, so that the conductor can give the most accurate instructions to both the participant and his/her assistant after the most accurate observation possible.

It can be assured that it is necessary to test all technical devices at least once for proper visibility, audibility, and positioning.

Our colleagues all agreed that without the right technical tools, the implementation of the online program will fail.

Wired internet connection or well-functioning wi-fi is a must. It is necessary to agree in advance which technical device will be used by the participant. (eg laptop, tablet, iPad, etc. or mobile phone).

Our study also revealed that it makes a big difference what kind of device (laptop, a tablet, or a phone) they are logged in with. The image will be different in size, and the dynamics of the program may change due to variations in visibility. Sometimes it was necessary to bring a cell phone closer for better visibility, but this took time, leaving the participant alone, which is also unfortunate in certain positions. For smaller details, such as facial expressions, the camera had to be brought closer.

It has also become clear that another technical device must be used if someone from home joins a locally organized group, because lead conductor moves in the room, so fixed microphone and earphones are needed. In other cases, when the colleague who leads the program from one site and alone and in one place, a microphone built into the traditional device is sufficient even when logging in from multiple locations.

The growing size of various digital devices has helped children concentrate. On a bigger screen, they could see the conductor better and easier. A colleague appearing on the mobile phone was able to attract the child's attention too, give specific instructions, which the child and the facilitator coped with independently, in which case the leading colleague remained in a more control role.

Studies suggest that the conductor needs to plan for a longer period of time when verbally presents the goals and tasks.

In goal selection, colleagues chose the same goals for both the group and the individuals as if the development program had taken place under traditional circumstances. Among the goals achieved, many conductors note that activity was most often achieved with the group/child, however often lacking accurate execution. The goals related to the development of communication and social skills were partially achieved. The first time “virtual” connections unknown to children caused losing valuable time.

The observation was considered by most colleagues to be like that in a traditional CE environment, lacking the manual perception. It was described differently that due to the “distance” they could not see well for example the child’s facial expressions, fine manipulation solutions, and the facilitator be positioned frequently. They tried to bring the digital device closer to themselves or the participant.

It is necessary and possible to start a joint social part of the program every time, so the group members know about each other even if they are not physically in the same room.

Regarding the leadership style, colleagues said that in the initially foreign environment (no child with him/her) they spoke louder, used several nonverbal communication elements, for example body language, strong gesticulation, signs, etc.

With the singing form of rhythmic intention, colleagues considered to hand over the role of lead singer to the local helper for the child’s benefit.

The guidance of facilitators has changed too, it had to be more intensive. The children had difficulty focusing on the screen, iPad, etc., however, the adult helper next to them was easier to follow. Several conductors showed manual

facilitation on themselves and that was tried by the helper with the child. The conductor had to come closer to the camera and just show the facilitation technique and then check if the helper and participant understood. Several times, colleagues chose a different individual solution when there were new facilitators beside the participant, the teaching of the facilitator slowed down the program, which reduced the variety of individual solutions.

The conductor shown on the screen should remain the leader for the child, you can hand over the lead role to the home helper in integrated ADL tasks. Furthermore, it worth to give more leading role to the facilitator when they assess a session of a home participant.

To maintain the dynamics of the program, it is important to keep the starting positions and the achieved positions even in a play situation.

It is an extremely important experience that manual facilitation and rhythmical intention need to be modified the most. We suggested they should be altered depending on 3 aspects: technique, mental age, and dominant role between leader and facilitator.

How to Develop Further?

Nearly twenty conductors we interviewed in the fall of 2021 and that contributed to a more complete picture about online usage of CE. There were those who were not completely surprised when we switched to implementing online programs in several of our units in March 2020 and there were those who experienced the change of tides as a complete beginner.

One of the most important experiences of our colleagues was that participating in the online program can be seen as a learning process for both the conductor and those who are logging in from home.

The conductor leading the program must organize, plan, implement, and evaluate the program in a completely new environment. The conductor also had to get used to the fact that she/he saw her/himself on the screen all the time. In digital space, she/he was present in two dimensions for program participants, so he had to fill the space differently than if he were in the same room together.

Conductors have also had the experience that online leading a CE program has physically consumed less energy, there was no need to prepare the room or tidy up after the session. Much more mental fatigue was already felt during the planning period, and much more concentration needed especially during larger groups. The mixed groups were felt the toughest by colleagues when a group was led locally, and one or more participants joined online.

The goal selection did not change compared to traditional CE session. Activity was most often achieved with the group/child; however we cannot talk about fully accurate implementation of task series. The goals set for the communication and social skills were partially achieved as well. However, because of the everyday encounter, the children also adapted to the new situation and were able to pay attention to the leader on the screen.

Even planning took a lot more time and mental energy than a traditional case. Mandatory routines included a preliminary consultation with home side, followed by a written letter covering all details and tools, which was sent to families each time before the period or week.

It included a timetable, goals, group and individual tasks and solutions, as well as a range of creative ideas to use home objects instead of the well-known ones, for example: rolled up socks instead of beanbags, wooden spoons instead of short sticks, pot cover instead of rings. We've also learned that it's worth sending the internet link to

families that morning the program starts making it easier for them to connect. The families adapted creatively to their home conditions; with fewer tasks we could get better results. They also became more aware of choosing and changing tasks and way of facilitation techniques.

Other techniques for observation were applied, initially more questions were asked to the facilitators at home, were the answers given replaced the perception of the conductors' manual facilitation. Additional and more creative ways of differentiation were introduced, which gave them a more detailed perception of the child. Naturally there were families in all our business areas, that had difficulties steering the child's attention towards the screen due to various reasons (i.e. visual impairment), however the continuous development was managed by sending home prepared tasks alongside with the constant instructions from our colleagues.

They demonstrated the task either on their own, or on a doll, but they were always waved into the instructions and play activities. This way the prevention was intertwined with the understanding of the tasks, which allowed the dynamics of the program remain unaffected, there was no need for pauses, longer explanations, and the time schedule was held.

Other individual solutions were chosen, when a new facilitator was with the participant, as the teaching of the facilitator often slowed down the program and affected its diversity. Even though the number of instructions and preventions were initially dominant, thru repetition the facilitation techniques became easier and automated by the facilitators in the home environment as well.

The easily interpreted sentences, instructions that clearly contained the brief aim and the way of solution, was the most helpful to the home facilitators.

However, it remained difficult to the home facilitators that were not comfortable with the mutual language.

On several occasions, the conductor handed over the leader-role to the facilitator at home, as it was necessary to solve the situation.

Each task series or conducted program was closed with application of skills, with the conductors' endless imagination: to open/close drawers and packing, rolling, and creeping across the length of the room, pairing socks when walking thru an obstacle course made of rolled up rugs, towels, and bottles etc.

The planning of school lessons was also adapted to a different dimension and to the families' possibilities. The pre-coordination with the families also helped to familiarize with the home, which after creative ideas were given as tasks solutions.

As we previously thought, now it also became acceptable to the families, that the parents, the facilitator in the home, knows its child in a different way than we do. In addition, the child's behaviour is completely different in the home environment. As a result, occasionally the school aims had to be modified to situation at home.

Several conductors also agreed that they developed the most, thru communicating, and leading programs. Although the spontaneous, and humorous situation solving decreased, in turn they adapted their leading style, in line with their personality, to be more disciplined and aware. As time passed, they became more skilled and could again momentarily improvise.

Their detection skills became more accurate, their reaction time became faster, as unexpected situations aroused despite the planning and preparations. It was also mentioned several times, that their patience, flexibility, even empathy developed after adapting to the new situation.

A new solution: during the singing form of rhythmical intention and action songs the leader waved for those logging in from different locations to mute the microphones, so everyone could only hear the voice of the leading conductor. Of course, they could sing at home, but that didn't disturb the rest of the group.

Participants and home facilitating relatives or assistants could not agree how to help the trainees best in the new situation at first. Listening to the leading conductor went generally well, but while in the traditional case the leader changes his place in the room, instructions can be heard, he can reach out, the participants can read her/his body language when needed, in the case of the online leader they always had to look at her/him and facilitate at the same time. Because of this, the child was "over facilitated" several times, there was a hand always on the participant even when it was not necessary because the leader had to be looked at and listened to. At repeated occasions, this frustration had diminished, and the helping parent/assistant was able to hear and understand the online leader even without constant eye contact.

Despite the distance of the leading conductor, the facilitators felt safe and learned their role. It was a very positive experience that not only personal assistants or parents, but also older siblings and grandparents were able to try themselves in this role and were grateful for the opportunity.

The helpers did not have any problems with the implementation and application of the known individual solutions, but when the leader introduced a new task and the new solution, they were insecure, as the leader was "away" and could only communicate verbally this way the dynamics of the program lost its balance sometimes. As their experience grew and they got to know the child more and more the helpers became safer and more creative.

Often, the facilitators complained about the lack of manual correction by the conductor and situations where they have helped the child together, as the conductor dares to try and challenge the child more.

The equipment, toys intended to be used in the program were all available as a result of previous written instructions, the leading conductor gave specific instructions for use or showed how to use them several times.

Most of the participants experienced that the digital program was successful, the child developed or didn't decline during the period spent at home.

It was described that the group lacked the physical presence of the group. At the same time, several parents highlighted that the child was more focused by being alone. The helpers also reported that they sometimes did not dare to ask questions in a particular situation because they thought it might have disturbed the other digital device users.

The parents emphasized that this way the conductive program could reach more people, and they also had more time for other types of activities, as they did not have to travel, they could stay in their homes. They noted that this program can also reduce the physical load on the conductor.

Of course, there were a few families who would not choose the online lead-session again, they prefer the traditional way of participation in a CE program.

Summary

In traditional development forms the conductor is in the same location as every member of the group, the children participate in the lessons in school, however we have experienced the pros and cons of online engagement.

Several Conductor-competencies developed consciously and some automatically throughout the online programs.

Through online participation, the development can be continuous since the families can participate in the development-programs from their home. It is an excellent result, that families have reached a deeper understanding of their children, understood their goals and individual solutions, they themselves became a participant of the development program and they are given an opportunity to introduce a conductive lifestyle in their home environment.

The cooperation with local decisionmakers has proceeded further and has given us the opportunity for appearance in other forms. Both families and authorities have expressed the need, where the two forms intertwined would be the most optimal for spreading the awareness of Conductive Education, since it could reach a larger crowd.

Based on our experiences and our analysis, it is proven to us that even Conductive Education in its adapted form, with the conductors' online presence, the complex development structure is realized.

As a result of our analysis, we can conclude that programs delivered online is qualified as conductive programs, since the main goal: achieving activity (Hári, 1991) is reached.

In addition, the conductor, the complex pedagogical program, the facilitation tool, the rhythmical intention as well as the group (Hári, 1991) is found in one place at one time, just different from the traditional form.

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