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# Stuck in old ways: Towards transdisciplinary training for healthcare professionals in early intervention

**Significance:**

South Africa has a serious shortage of healthcare professionals trained to provide early intervention services for young children with disabilities, especially in the public healthcare sector, accessed by the majority of the South African population. A transdisciplinary approach which requires healthcare professionals to work across and outside their disciplinary boundaries is recommended, but few healthcare professionals in South Africa are trained in this manner. A need exists, therefore, to transform the training of healthcare professionals to ensure that more children with disabilities can receive early intervention services.

## Introduction

Like many other low- and middle-income countries on the African continent, South Africa has a significant shortage of healthcare professionals.[1] Across the 47 countries of the WHO African region, there are only approximately 3.6 million healthcare workers, the majority of whom are nurses and medical doctors.[2] A much smaller percentage of this workforce is made up of rehabilitation professionals such as occupational therapists (OTs), physiotherapists (PTs), speech-language therapists (SLTs), and audiologists (AUDs), amongst others.[2]

In South Africa, the result of this workforce shortage means that access to rehabilitation services for those with short- and long-term disabilities is desperately lacking, especially in the public healthcare sector[1] and even more so in rural areas[3]. For example, in 2022, there were 6063 OTs, 8571 PTs, and 4072 SLTs and AUDs registered with the Health Professions Council of South Africa.[4] Within South Africa's two-tiered healthcare system, of these, 1101 (18%) OTs, 1224 (14%) PTs, and 617 (15%) SLTs and AUDs were employed in the public healthcare sector[4], with the rest presumably operating in private health care or education, or in other countries, or possibly unemployed or awaiting placement. The public sector workforce equates to 2.8 OTs, 3.2 PTs, and 1.7 SLTs per 100 000 patients in the public healthcare sector[5] which services 84% of the South African population[1]. Only 40% of the public sector rehabilitation therapists are estimated to work in rural settings, with inexperienced community service therapists making up a third of this rural workforce.[1] The private healthcare setting, which is estimated to service 16% of the South African population, employs the majority of the health and rehabilitation workforce in the country.[1] Such stark inequality between public and private health care is one of the main drivers for South Africa's National Health Insurance (NHI) Bill[6] which has recently been signed into law.

Children with disabilities typically require a range of therapeutic and rehabilitative interventions from a range of rehabilitation professionals due to the nature of their disability.[3] For the country's estimated 1.15 million young (0–5 years) children with sensory, cognitive and physical disabilities[6], personnel shortages, especially in rural areas, effectively mean that many will miss out on important therapeutic services[3] that could enhance their development or prevent further delays[7].

Over and above workforce constraints, the multidisciplinary and siloed nature in which many rehabilitation professionals operate to deliver early intervention services in South Africa[7,8] makes inefficient and ineffective use of already scarce personnel resources[3] and undermines the quality of services to young children with disabilities. Multidisciplinary rehabilitation teams consist of various disciplinary members that individually assess a child, carry out interventions, and write separate reports and goals within their own disciplinary boundaries.[9] For caregivers of young children with disabilities who are fortunate to gain access to these scarce early intervention services in the public sector, a multidisciplinary approach often requires them to consult separately and at different times, or possibly even different days, with a range of professionals like OTs, PTs and SLTs.

This approach is inefficient, especially for poor families for whom travel to hospitals for different appointments can cut into already constrained financial resources.[7] Furthermore, when rehabilitation professionals work independently of each other in this way, service delivery becomes ineffective as professionals tend to share minimal information about the child between themselves. This may lead to diverse and even contradictory intervention goals which can be confusing for families of children with disabilities.[9]

The multidisciplinary approach also operates on the incorrect assumption that professional services directed to children with disabilities provided once a week or a month within clinical settings are the main pathways through which children learn. This minimises the role that primary caregivers of children with disabilities play in supporting their children's development. Ecological theories and evidence-based research have shown that primary caregivers are the most important influence on their children's development, as learning occurs in the context of children's participation in everyday routines and activities in their natural environments.[10] This does not negate the need for professional rehabilitation services but merely emphasises that important primary caregivers who spend most of their time with children have many more opportunities to influence children's learning and development outside the therapeutic setting. Mahoney and Wiggers[10] estimate this influence to be in the region of 12 times more than that of rehabilitation therapists.

In contrast, the more efficient transdisciplinary approach to service delivery has been put forward as an alternative collaborative model of service delivery[3] in early childhood intervention (ECI)[9], especially within the South African context for children with disabilities[7]. The transdisciplinary approach encourages more dynamic collaboration between rehabilitation disciplines, requiring professionals to think and work outside their disciplinary boundaries to establish collective goals together with families of children with disabilities. Within the transdisciplinary approach, families of children with disabilities work with only one professional who acts as the primary service provider or case manager and becomes the family's link with the rest of the team of rehabilitation professionals.[9]

While there have been previous calls for a move towards a transdisciplinary approach in the rehabilitation professions in South Africa[3,7], few of these calls have shown how this can be done in practice. In the context of rehabilitation personnel shortages within the public healthcare sector, this Commentary therefore focuses specifically on how service delivery for children with disabilities can be transformed by incorporating the transdisciplinary approach into the education and training of rehabilitation professionals within undergraduate, postgraduate and continuing education programmes. This would be one way to ensure more effective ECI services in South Africa for children with disabilities, in line with the NHI's commitment to addressing equitable health care for all South Africans.

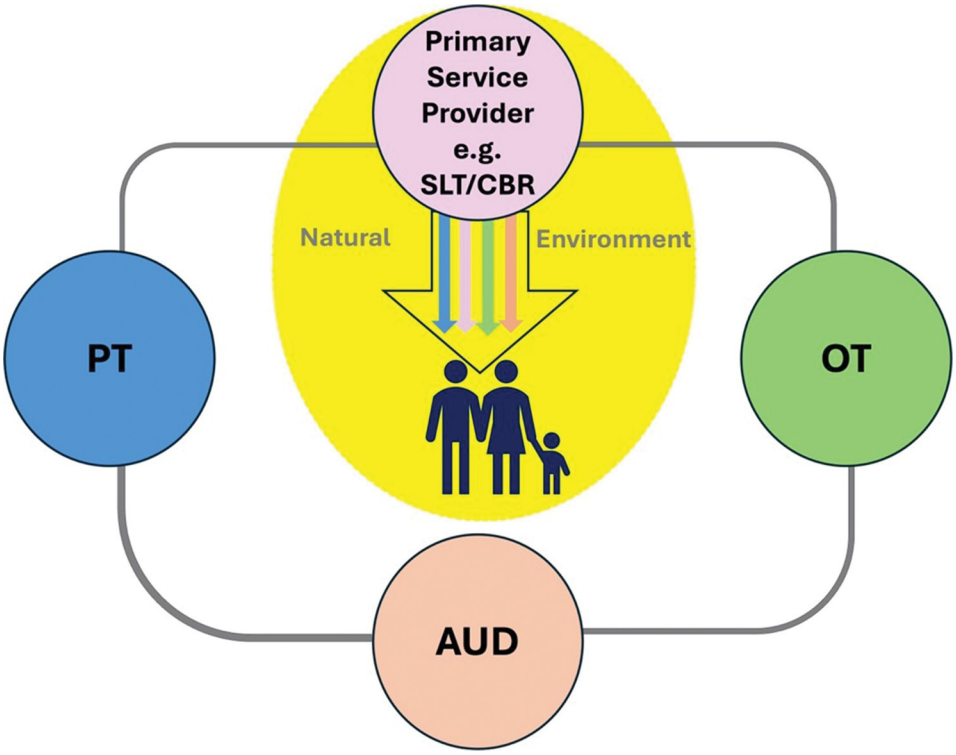
## Understanding the transdisciplinary service delivery model for ECI

The transdisciplinary model for service delivery is the recommended practice in the field of ECI for children with disabilities as it decreases the fragmentation of service delivery while enhancing communication between team members and service coordination.[9] This model involves a team of rehabilitation professionals, mainly OTs, SLTs and PTs, but can also involve additional members of the healthcare team, e.g. community-based rehabilitation workers.[3] In less-resourced rural settings, for example, community-based rehabilitation workers (rehabilitation personnel without professional degrees) may represent a cost-effective resource for transdisciplinary teams[3] as they have skills in working at a community and household level under the supervision of professionally trained rehabilitation practitioners[11].

Transdisciplinary team members thus commit to teach, learn and work together across disciplinary boundaries to implement a unified intervention plan.[9] In contrast to the multidisciplinary model, families are valued members of the team in a transdisciplinary model and are involved from the very outset in assisting with the development of an intervention plan based on the family's needs and resources.[10]

In terms of implementation, one member is designated by the team as the primary service provider for a particular case and acts as the link between the rehabilitation team and the family, as depicted in Figure 1. This then enables the rest of the team to become primary service providers for other cases. However, the full team of professionals remains involved with the case as the primary service provider reports back to the team frequently and is trained by those from the other disciplines to implement the agreed-upon intervention plan through the process of role release (described later in Table 1).

The rest of the team may remain involved in other ways, including periodic joint visits for consultation or monitoring purposes. They are also responsible for providing ongoing oversight of their disciplinary aspect for the particular child, and for coaching the primary service provider in discipline-specific strategies that are relevant to the child and family in realising the team's intervention goals. Each team member, therefore, still maintains ethical responsibility for the case with the primary service provider mainly acting as the 'hands' through which the team's intervention goals are realised. This way of working does not fall outside the scope of practice of the rehabilitation professions in South Africa. The regulations defining the scope of the profession of speech-language therapy[12], for example, promote SLT collaboration with other professionals, serving as case managers and service delivery coordinators, as well as providing in-service training to families, caregivers and other professionals. This is also congruent with international speech therapy bodies such as the American Speech-Language-Hearing




*OT, occupational therapist; AUD, audiologist; PT, physiotherapist; SLT, speech-language therapist; CBR, community-based rehabilitation worker*

**Figure 1:** The transdisciplinary team approach.

Association (ASHA), in which transdisciplinary collaboration within the context of Interprofessional Education and Practice is promoted.[13]

It should be understood, however, that complex interventions by a specific discipline that pose a risk to clients (e.g. SLTs offering dysphagia intervention) should not be delegated to other team members who are not SLTs.[9]

## Moving from multidisciplinary to transdisciplinary ECI

The multidisciplinary approach to ECI service delivery for children with disabilities in South Africa is still firmly entrenched due to the traditional, unidisciplinary medical model of undergraduate training in the rehabilitation disciplines.[9] Curriculum content and clinical practicum experiences at an undergraduate level tend therefore to be focused on a specific discipline. Unidisciplinary education within the rehabilitation sciences facilitates power hierarchies and competition while actively discouraging cooperation between disciplines.[14] This then ultimately filters down to clinical practice in South Africa where rehabilitation professionals still struggle to work together.[14]

Currently, the only opportunity for rehabilitation professionals in South Africa to gain any formal training on the transdisciplinary approach is at a postgraduate level through an Interprofessional Education (IPE) master's programme in ECI at the University of Pretoria. The programme started in 2001[15] and has trained approximately 350 graduated rehabilitation professionals in the transdisciplinary approach. However, this number should be acknowledged as a mere fraction of those registered to practice. Alongside gaining knowledge and skills in transdisciplinary teamwork, an emphasis is also placed on incorporating the biopsychosocial framework of the World Health Organization's (WHO) International Classification of Disability, Functioning and Health, to gain an understanding of the child's ability to participate in everyday routines and activities. Participation within home and education routines as well as in activities in community settings with their caregivers, is the context within which children's learning and development takes place.[10]

The International Classification of Disability, Functioning and Health thus becomes the vehicle through which those trained in the transdisciplinary approach can develop shared goals. This is a requirement for collaborative goal setting in transdisciplinary interventions.[9] Simultaneously, they gain a deeper understanding of how disciplinary-specific knowledge and skills can be used to facilitate participation-related goals in intervention. For example, a caregiver of a child with cerebral palsy reported that participation in mealtimes with her child is extremely difficult. A team assessment revealed that poor seating and positioning, difficulties in chewing as a result of increased oral tone, and difficulties in bringing food to the mouth with unadapted eating utensils, are some of the main reasons for difficulties within this routine. With the shared goal of improving participation in the mealtime routine, the PT may provide recommendations regarding adaptive seating for better postural control, which can also improve oral-motor movements by decreasing oral tone. In addition, the SLT may recommend experimenting with various food textures that may make it easier for the child to chew. The OT could also make recommendations for adapting eating utensils by providing advice and training on enlarging the handles of spoons or using a universal cuff to allow the child to manipulate a spoon better. The team then works together with the designated primary service provider or caseworker, by releasing the discipline-specific skills and strategies required to improve the shared goal of participation in the mealtime routine. The primary service provider, rather than all individual members of the team, works together with the caregiver and coaches them on the various discipline-specific strategies recommended by the team.

The environment for moving towards a transdisciplinary model of service delivery has been created due to the growing awareness internationally, as well as in South Africa, that the unidisciplinary model of training health professionals on its own is not fit for purpose in delivering an effective healthcare service.[16] After an initial workshop hosted in 2012 by the Academy of Science of South Africa (ASSAf), a subsequent multi-professional consensus study highlighted the need for interprofessional education and collaborative practice (IPECP) in the training of healthcare professionals.[16] IPECP occurs when two or more professions learn about, from, and with each other to enable effective collaboration and improve outcomes for individuals and the families they serve.[17]

IPECP and the transdisciplinary approach have the same underlying philosophy, namely shared learning across disciplines as well as collaborative teamwork. IPECP, however, does not stipulate the form that collaborative teamwork should take, although it is implied that it should be more collaborative than the siloed, multidisciplinary approach. The transdisciplinary approach takes the collaborative part of IPECP one step further by adding the components of integrated assessment and treatment goals that can be implemented by any of the team members (including community-based rehabilitation workers) acting as a primary service provider.

The ASSAf recommendation for IPECP is now slowly starting to be incorporated into the undergraduate training of rehabilitation professionals to train future members of interprofessional teams in South Africa who can more effectively address workforce constraints.[17,18] However, this approach to training may not be as pervasive across all institutions in the country that train healthcare professionals. Furthermore, the more integrated transdisciplinary philosophy of teamwork is not reflected in current undergraduate IPECP curricula in South Africa[17,18], although there is a focus on training on the International Classification of Disability, Functioning and Health in IPECP[14].

Despite these encouraging IPECP developments, my experience, as a university representative on the Gauteng Department of Health's ECI Forum[19] conducting workshops with community service rehabilitation professionals on collaborative ECI for children with disabilities, has shown that they still struggle to work collaboratively. The multidisciplinary approach to service delivery therefore still appears to be highly prevalent in the way that new graduates are trained.

I, therefore, propose recommendations for IPECP training in South Africa that may start to incorporate role release processes of the transdisciplinary approach[9] into undergraduate, postgraduate and continuing education programmes, especially as a significant percentage of the rehabilitation workforce may have not received any form of IPECP.

Role release or role transfer is where rehabilitation professionals, together with the family, share their basic expertise and allow the primary service provider to carry out the intervention plan with the child and family.[9] This concept is not unheard of in the traditional healthcare setting. During the COVID-19 pandemic, for example, many healthcare professionals in South Africa and elsewhere were trained to take on roles that were not part of their traditional scope of practice.[20] King and colleagues[9] outline key features of the role release process which build on each other and may be seen as the sum of several separate but related processes which should occur before a primary service provider can implement carryover of discipline-specific strategies with the child and family (Table 1). These processes, in hierarchical order, are role extension, role enrichment, role expansion, role exchange, role release and role support.[9] Table 1 outlines the key team member activities of each of these processes. It is suggested that for new trainees at an undergraduate level, role extension, role enrichment and role expansion training may be possible. Elements of role enrichment and role expansion already appear to be featured in some undergraduate IPE curricula[17] of rehabilitation professionals in South Africa[18]. Further role expansion at this level could already start to be incorporated into IPE practicums where students can be taught how to conduct an arena assessment.[9] The arena assessment is a defining feature of the transdisciplinary approach, in which each disciplinary team member assesses the child simultaneously, using both standardised measures and informal methods.[9] From a practical point of view, getting students from the rehabilitation disciplines together in the same space is quite feasible, especially as they tend to share some of the same practicum locations for their clinical blocks. During an arena assessment, one person from the rehabilitation team which consists of multiple disciplines, engages the child in a play activity. During the play routine, the other team members observe and collect information about different developmental areas, as well as the interrelatedness of these areas, together with the child's caregivers.

**Table 1:** The activities involved in the role release process at various levels of training

| Type of process | Team member activities | Education level |
|---|---|---|
| Role extension | Team members are learning and expanding their discipline-specific clinical and practical skills in order to support children and families. | Undergraduate training / continuing education |
| Role enrichment | Team members start to learn and have a broader awareness about other disciplines of the rehabilitation team. Team members share information and best practices of their discipline as it relates to children. | |
| Role expansion | Team members share ideas and information to broaden their knowledge in order to make observations, judgements, and recommendations from multiple rehabilitation disciplinary perspectives, e.g. within an arena assessment and subsequent team meeting. | |
| Role exchange | Team members learn theories, methods, and procedures of other rehabilitation disciplines and begin to implement a few techniques from these disciplines with guidance. | Postgraduate training / continuing education |
| Role release | Individual rehabilitation team members are competent to use strategies and techniques from other disciplines without direct hands-on guidance. | |
| Role support | Team members continually advise, support and encourage each another, and in particular the primary service provider, especially when chosen interventions are more complex than most rehabilitation practitioners' training would have covered. | |

The processes of role exchange, role release and role support are best trained at a postgraduate level or through continued education, as rehabilitation professionals need to have in-depth knowledge, experience and competence in their own disciplines before they can release discipline-specific skills over to a primary service provider. For a significant number of professionals who have received no IPE training, they will need to be trained in all processes and activities of role release through continuing education programmes. While the Gauteng Department of Health's ECI Forum[19] has started some of this training in ECI workshops, it may not always be targeting those who are most in need of it, for example, practitioners who were trained in multidisciplinary ways of working.

It should also be noted that not all graduate rehabilitation professionals may undertake postgraduate studies as they may not meet the eligibility criteria of universities. It is therefore an imperative to have more continued education programmes to train and support ECI rehabilitation teams in South Africa on the journey to becoming transdisciplinary, especially in rural settings.[3]

This is especially important as the current cohort of those trained at a postgraduate level on the transdisciplinary approach in South Africa anecdotally report that there are many systemic challenges in implementing transdisciplinary service delivery in their work contexts, despite their willingness to do so. These challenges include, but are not limited to, difficulty with managers who are unwilling to provide time for team training and coordination, as well as hospital systems that do not allow assessment and intervention to take place within the natural environments of the child, such as the home. These challenges necessitate not only more extensive research to be conducted with those trained in the transdisciplinary approach but also, for more evidence-based studies of transdisciplinary service delivery in South Africa, which still are lacking.[3]

## Conclusion

The initial training time that teams need to become transdisciplinary should not be underestimated. However, the long-term benefits in terms of efficiency and effectiveness for already scarce professional rehabilitation resources[1] cannot be underestimated. The impending implementation of the NHI, which aims to address more equitable health services for all South Africans[6] even in the context of a scarce rehabilitation workforce, presents an important moment to pause and strategise on a sustainable way of delivering more efficient and effective services for children with disabilities, in line with a transdisciplinary approach.

## Declarations

I have no competing interests to declare. AI was not used in the writing or editing of this manuscript.

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