The Significance of Specialist Teachers of Learners with Visual Impairments as Agents of Change: Examining Personnel Preparation in the United Kingdom through a Bioecological Systems Theory

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Structured abstract: *Introduction:* The unique challenges to learning and participation in education associated with visual impairment are well documented in the literature, as is the importance of addressing these challenges through ensuring practitioners who support them are equipped with appropriate knowledge, understanding, and skills. We use a bioecological systems theory as a lens through which to examine the personnel preparation of vision specialist teachers to act as agents of change. We draw on the different teacher preparation programs for specialist teachers of learners with visual impairments in the United Kingdom to demonstrate how this theory can be applied. *Methods:* We use a bounded case study to bring together the respective teacher preparation programs in the UK in order to demonstrate complementary characteristics of the theoretical model proposed. *Results and discussion:* We argue that a bioecological systems theory offers a holistic framework for educators involved in personnel preparation to explicitly engage with vision specialist teachers in their role as potential agents of change. This preparation includes developing distinctive knowledge, understanding, and skills to facilitate learner participation in education through promoting "progressive" and "mutual" accommodation between the active learner and the changing learning environments in order to achieve successful outcomes. *Implications for practitioners:* The article is original in applying a bioecological systems theory to the preparation of these specialist teachers, with a focus on their role as agents of change. We argue that it has significance, therefore, for practitioners and researchers concerned with the personnel preparation of other practitioners for learners with distinctive educational needs across national contexts and settings.

The unique challenges to learning and participation in education associated with visual impairment are well documented in the literature, as is the importance of addressing these challenges through ensuring teachers are equipped with specialist knowledge, understanding, and skills (McLinden & Douglas, 2014; Hazekamp & Huebner, 1989; Mason & McCall, 1997; McLinden, Douglas, Hewett, Cobb, & Ravenscroft, 2016; Ravenscroft, 2015). Educational support is provided by a range of practitioners and in many national contexts includes input from specialist teachers of learners with visual impairments (McLinden & McCracken, 2016; Ravenscroft, 2013; Silberman & Sacks, 2007). We define *specialist teachers* as those who have a specific qualification that is over and above their initial teaching qualification in order to develop and deliver specialized educational programs for learners with visual impairments. Within the United Kingdom, these specialist teachers are referred to as qualified teachers of visually impaired students. In the United Kingdom, such a teacher must first hold an initial teaching qualification (either primary or secondary) and normally have been teaching in the classroom for two years. In addition, the teacher must obtain a further postgraduate diploma from a government-recognized university.

Given the changing and complex educational landscape in which specialist teachers support such learners in different contexts, we build on recent work in this area to illustrate how a bioecological systems theory (Bronfenbrenner, 2005) can be drawn upon to inform personnel preparation across national contexts and settings in order to ensure that these specialist teachers are able to act as significant "agents of change." By adapting such a theoretical approach to personnel preparation, teachers can learn to understand their role as political, cultural, intellectual, and moral agents, and therefore can use this understanding to inform their classroom and itinerant practice as well as their relationships with learners and the communities in which they work. This approach may not have previously been a significant component of specialist teacher preparation programs. We define the distinctive role of the vision specialist teacher in acting as an agent of change as including:

- contributing to establishing individual learner needs and strengths;
- mediating between the developing and active visually impaired learner and the changing proximal (close) environments;
- facilitating interactions between environments and connections with distal (distance) influences;
- shaping distal influences such as curriculum policies, budget allocations, and staffing levels;
- engaging with, and being guided by, national and international policy and rights drivers and agendas; and
- promoting progressive and mutual accommodation between the active learner and the changing learning environments in order to develop and promote independence.

Re-examining how specialist teachers of learners with visual impairments are prepared for this role in a given national context is particularly relevant at a time when their professional roles are undergoing considerable change (McLinden et al., 2016; McLinden & McCracken, 2016). As an

example, new national legislation and policy in England and Scotland such as the SEND (Special Educational Needs) Code of Practice in England, (Department for Education [DfE], 2015), Education (Scotland) Act (Scottish Government, 2016), strengthens the responsibilities of mainstream and special schools for teaching and assessing the progress of *all* learners with particular educational needs who are placed with them. Our focus in this paper, therefore, is to offer a holistic conceptualization of the knowledge, understanding, and skills the specialist teacher requires to act as a proactive agent of change in order to facilitate a learner's participation and development within a complex and evolving "ecology" of inclusive education (Anderson, Boyle, & Deppeler, 2014).

We start the paper with an overview of Bronfenbrenner's bioecological systems theory of development (Bronfenbrenner, 2005) and discuss how it has been drawn upon to examine the distinctive role of specialist teachers in supporting learners with sensory impairments (McLinden et al., 2016; McLinden & McCracken, 2016; Swanwick, 2014). We then apply the theory to the United Kingdom as a bounded case study in order to examine the personnel preparation of vision specialist teachers, drawing on two national specifications (England and Scotland) to illustrate relevant knowledge, understanding, and skills. Our original contribution to the literature is to propose a new conceptual model that draws on a bioecological systems theory to illustrate the distinctive knowledge, understanding, and skills that specialist teachers of learners with visual impairments require through personnel preparation in order to act as effective agents of change, working within and between the respective systems of a given educational ecology.

Overview of the bioecological systems theory

The bioecological systems theory was developed by Uri Bronfenbrenner over several decades to demonstrate the complex and sophisticated relationships between influences on human development that are close to the learner (proximal influences) and those that are distant (distal influences) over a given developmental time span (Bronfenbrenner, 1979; 2005). As Lerner (2005, p. xviii) notes, Bronfenbrenner's model includes several propositions described as "sets of ideas" to promote a "dynamic, person-context relational view of the process of human development." The first proposition was described by Bronfenbrenner as being the cornerstone of a broader bioecological systems theory (Bronfenbrenner, 2005), and makes reference to "the progressive, mutual accommodation, *throughout the life course*, between an active, growing human being and the changing properties of the immediate settings in which the developing person lives, since this process is affected by the relations between these settings, and by the larger contexts in which the settings are embedded" (Bronfenbrenner, 2005, p. 107 [original italics]). The synthesis between the active individual and the changing context was conceptualized by Bronfenbrenner as a series of nested systems in order to reflect their dynamic relationships within a given ecology. The context within which individual development takes place in this structure is commonly represented in the literature as a series of concentric circles situated around a developing individual, with each

circle referring to nested but separate systems to reflect this ecology (Anderson et al., 2014; Hewett, Douglas, McLinden, & Keil, 2017; McLinden et al., 2016).

The individual at the center of the ecology can be described in relation to particular characteristics (for example, age, gender, cultural background, and the like), and was conceptualized by Bronfenbrenner (2005, p. 121) as "an active agent" who contributes to his or her own development. Surrounding the individual is the *microsystem* that incorporates "the complex of relations between the developing person and the environment in an immediate setting containing the person" (Bronfenbrenner, 1979, p. 515). For children and young people, this system includes their active interactions with people close to them in their environment, including, depending on their age, people in their home, playgroup, school, college, and wider community settings.

The *mesosystem* surrounds the microsystem and consists of "the interrelations amongst major settings containing the developing person at a particular point in his or her life" (Bronfenbrenner 1979, p. 515). As noted by McLinden and McCracken (2016), it is concerned with developing and promoting connections between structures *within* the child's microsystem as well as making connections with other agencies in the outer systems. The *exosystem* is situated around the mesosystem and is described as encompassing "the linkage and processes taking place between two or more settings, at least one of which does not ordinarily contain the developing person, but in which events occur that influence processes within the immediate setting that does contain that person" (Bronfenbrenner, 2005, p. 148). As such, it is considered to be a distal system that influences an individual indirectly through its potential impact on the micro- and mesosystems.

The outer system is referred to as the *macrosystem* and was conceptualized by Bronfenbrenner as comprising "the overarching pattern of micro-, meso-, and exosystems characteristic of a given culture, subculture, or other broader social context" (Bronfenbrenner, 2005, pp. 149–150). The relevance of this system is captured succinctly by Swanwick (2014, n.p.) in noting that it "develops the characteristics of the environment further to include factors which are more remote from the individual but which provide the infrastructure for the microsystem such as cultural constructs of education, culture or community." The *chronosystem* acknowledges the progressive nature of development over time, such that as children and adults get older or more experienced they may interact differently with the systems around them.

Although the theoretical framework outlined by Bronfenbrenner was not initally intended to be directly applied to children with disabilities, there is evidence in the literature to demonstrate the value of drawing on it to examine educational practice for learners with particular developmental needs (see, for example, Bricout et al., 2004; Davis, Ravenscroft, & Bizas, 2014). More recently, the framework has been applied to the support of learners with sensory impairments (see, for example, Hewett et al., 2017; McLinden et al., 2016; Swanwick, 2014). As an example, it has been drawn upon to examine the distinctive role of specialist teachers in facilitating curriculum access within education (McLinden et al., 2016), as well as to analyze multilayered influences on

Table 1
Number of children with vision impairments aged 0–16 years of age in the United Kingdom and approximate number of specialist teachers of learners with visual impairments (from Keil, 2012; Ravenscroft & Wazny, 2017; RNIB, 2017b).

Variable	England	N. Ireland	Scotland	Wales	Total
Number of children with visual impairments (0–16)	21,715	815	1,947	1,187	25,663
Approximate number of specialist teachers of learners with visual impairments	600	10	95	30	735

the participation of learners with visual impairments in higher education (Hewett et al., 2017). The framework has also provided a lens through which to provide a holistic overview of the role of visiting teachers of learners with sensory impairments in a national context, with a particular focus on the nature of the educational supports provided to schools (McLinden & McCracken, 2016).

With respect to the personnel preparation of specialist teachers of learners with other types of sensory impairments, Swanwick (2014) has applied a bioecological model to the education of teachers of students who are deaf. The model suggests that specialist teachers need to be supported in order to "develop the confidence and competencies to work effectively across these levels through training and professional development programmes and, beyond training, through the establishment of research practice partnerships which foster a critical engagement with the learning and teaching process" (Swanwick, 2014, n.p.). In the next section, we apply a similar analysis of the bioecological theory to examine the personnel preparation of specialist teachers of learners with visual impairments, with a particular focus on the context of the United Kingdom. We draw on a bounded case study approach (Hamilton & Ravenscroft, 2017), bringing together the programs in England and Scotland as a meaningful choice to demonstrate that, although there exist differing characteristics within both programs, they demonstrate complementary characteristics of the theoretical model proposed.

Personnel preparation of specialist vision teachers in the United Kingdom

Population, policy, and provision

The four countries comprising the United Kingdom are England, Northern Ireland, Scotland, and Wales. The educational contexts have become increasingly divergent since education has been devolved to each country, and although some policies differ, common issues have been identified as including (Royal National Institute of Blind People [RNIB], 2017a):

- integrating planning and commissioning of services to bring together education, health and social care provision;
- improving transitions through planning for children and young people from birth through to adulthood; and
- promoting greater choice and control for children and young people and their families.

Table 1 provides a breakdown of the numbers of children and young people with visual impairments known to the

schools and specialist services in each country, and the approximate number of specialist teachers with a qualification to teach these learners. The population data are drawn from a single dataset (RNIB, 2017b), and given the variations in how such data are collected and reported in relation to, for example, age and primary needs, there can be considerable variations in the numbers in comparison with other national datasets.

The situation with respect to the personnel preparation of specialist teachers of learners with visual impairments in the United Kingdom is complex, with specific requirements applying to each country. Although a number of national specifications have been developed outlining the particular knowledge, understanding, and skills that these teachers are expected to be able to demonstrate in a given national context, only those in England and Scotland were operational at the time of writing. As there are currently no specialist qualifications for teachers in Wales and Northern Ireland, therefore, eligible teachers would normally be expected to undertake a professional qualification at a course provider in either England or Scotland. As we discuss below, there are differences in teacher eligibility as well as in the course provider specifications that are drawn upon within each country.

Personnel preparation of specialist teachers in England

The Mandatory Qualification is a well-established route for specialist teachers seeking a professional qualification in England with a requirement that "those teaching classes of children with sensory impairment must hold an appropriate qualification approved by the Secretary of State. Teachers working in an advisory role to support such pupils should also hold the appropriate qualification" (DfE, 2015, para 6.61). The Mandatory Qualification is part of the statutory requirements for qualified teacher status set out in the regulations governing qualified teacher status in England (National College for Teaching and Leadership [NCTL], 2015, p. 4). In order to gain the qualification, the Department for Education requires that "participants are assessed against, and demonstrate that they meet, the required course outcomes" (NCTL, 2015, p. 4). Qualified teachers who work in advisory roles, as well as those supporting children and young people who have visual impairments in other educational settings, are advised to complete this training, although it is not a requirement for them (DfE, 2015). A summary of the headings used in the current specification for England (NCTL, 2015) is presented in Figure 1. Each of the headings is divided into subheadings listing specific outcomes that present the particular knowledge and understanding and skills that need to be demonstrated.

Personnel preparation of specialist teachers in Scotland

The *Requirements for Teachers (Scotland) Regulations* (Scottish Government, 2005, p. 1) requires each authority "to employ adequate numbers of teachers with appropriate professional skills and knowledge necessary to enable those teachers to undertake the teaching duties allocated to them." Teachers who teach wholly or mainly children with visual impairments are required to possess an appropriate qualification to teach such pupils (Ravenscroft and Wazny, 2017). Teachers may be

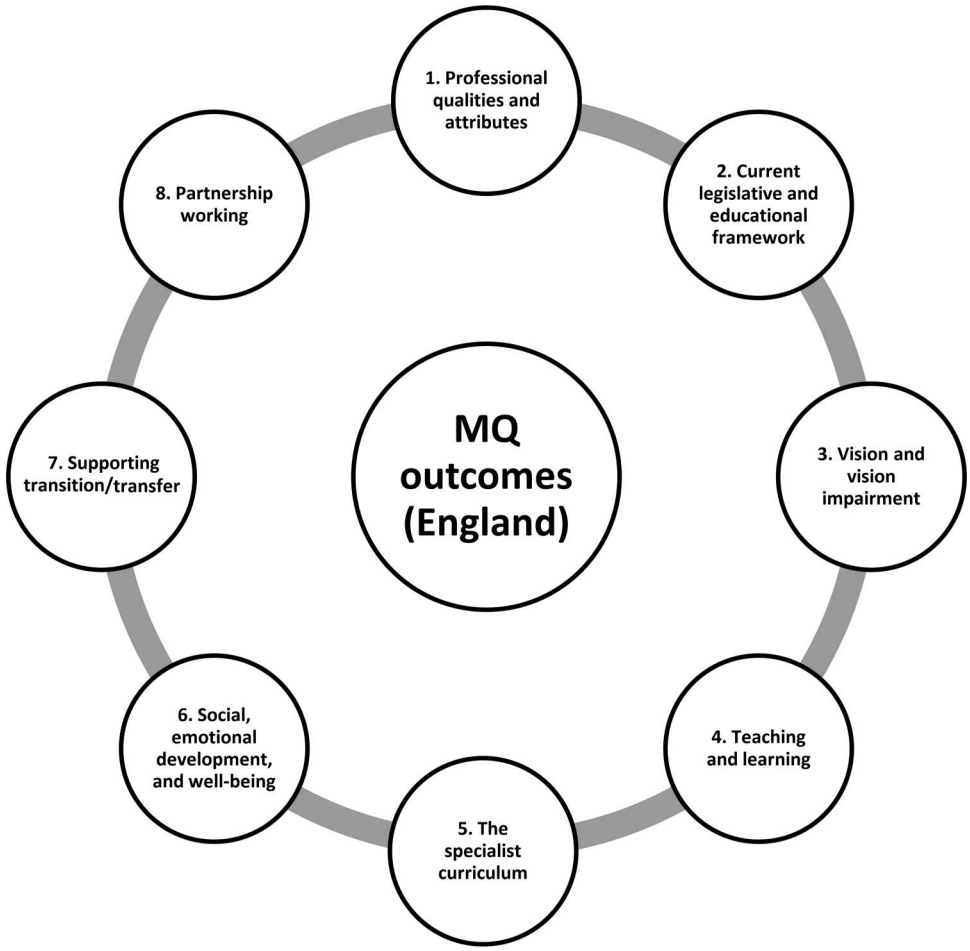

Figure 1. Summary of headings in the Mandatory Qualification specification for teachers of children and young people with visual impairments in England (adapted from NCTL, 2015).

employed by a local authority without having the appropriate additional qualifications so long as the education authority is satisfied that the teacher is already in the process of training and will obtain these qualifications within five years of the commencement of teaching pupils with visual impairments. Compared to England, there is a greater range of routes by which a teacher in Scotland can acquire the competencies. A major route is through the acquisition of degrees or attendance at courses at higher educational institutions, although qualification can also be obtained through a combination of courses and through other forms of accredited training (as long as that training has been quality assured). A summary of the headings used in the specifications for Scotland is presented in Figure 2.

Personnel Preparation of Specialist Vision Teachers Through a Bioecological Systems Model

Through the lens of a bioecological systems model, a learner with visual impairment is considered to be an active agent, situated at the center of a complex and

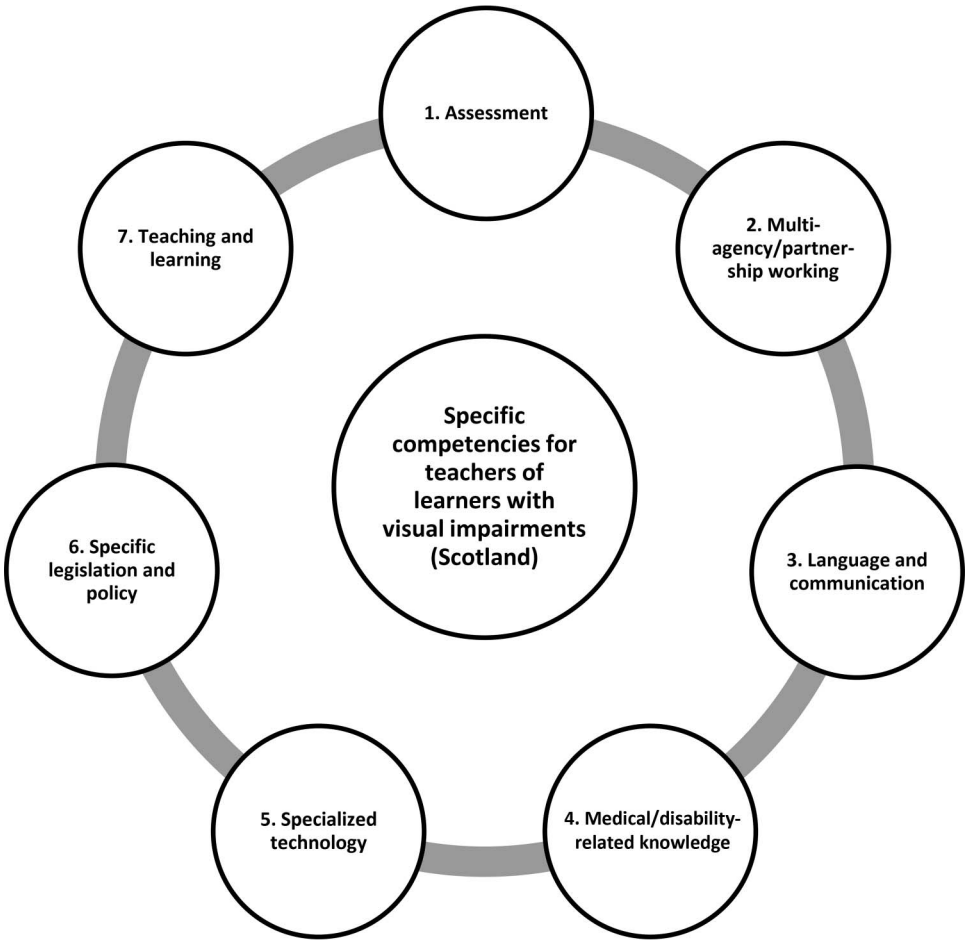

Figure 2. Summary of specific competencies for teachers of learners with visual impairments in Scotland (adapted from Scottish Government, 2007).

multilayered ecology that is governed by a range of proximal and distal influences. As we examine below, in order to act as agents of change in a given context personnel preparation of specialist teachers will seek to ensure that the teachers can work confidently and effectively within and between the respective systems to achieve successful outcomes.

With respect to the learner at the center of the ecology, the specialist teacher will need to know how to contribute to establishing individual needs and strengths, and help to match these to suitable learning and teaching approaches that promote access to learning and participation (NCTL, 2015). Preparing specialist teachers to contribute to establishing these needs includes ensuring they have appropriate knowledge and understanding of the anatomy and physiology of the eye and related structures; the range of conditions that can create visual impairments; and the potential implications of these conditions for development, learning, and participation (Mason & McCall, 1997; NCTL, 2015). Preparation will also include developing skills in undertaking

functional visual assessments, as well as in knowing how to promote a learner's physical, cognitive, and social development to ensure effective participation in education (NCTL, 2015). Examples of relevant knowledge, understanding, and skills from the different U.K. national specifications within the differing bioecological systems are presented in Table 2.

The *microsystem* contains the environments in which the learner actively develops through engaging in formal and informal learning activities, and includes the social aspects of his or her life (McLinden & McCracken, 2016). As an agent of change in this system, the specialist teacher has a significant role in mediating interactions between the learner and the learning environments. Personnel preparation will therefore include a focus on ensuring specialist teachers know and understand how to support learners to access the curriculum while also promoting independent learning through developing additional skills, including braille, technology, and mobility (McLinden et al., 2016; NCTL, 2015). Practical examples include advising on classroom layout, student seating positioning, and physical education participation (see Table 2).

The *mesosystem* includes the relationships that are developed and nurtured between a given home, school, community, and workplace setting. As an agent of change in this system, the specialist teacher will seek to develop and promote connections between structures within the child's microsystems and make links with distal influences in the outer systems. Personnel preparation will therefore include a focus on ensuring specialist teachers have the appropriate knowledge, understanding, and skills to faciliate interactions between environments, and to connect with distal influences, which include developing and promoting support networks within school and college, making links between parents and relevant services, supporting the child and his or her teachers in the respective educational environment, establishing connections with other agencies (for example, social services or rehabilitation), and drawing on relevant policy and legislation (Mason & McCall, 1997; NCTL, 2015). Practical examples include home visits from the specialist teacher to support parents and learners, and explaining and introducing the roles of other professionals involved in the support network (see Table 2).

The *exosystem* is conceptualized as being outside of the learner's direct agency and includes distal influences on the child such as the curriculum policies of the educational setting and budget allocations in a given year to support children and young people with particular types of needs. As an agent of change in this system, the specialist teacher will help to shape distal influences in order to facilitate learner engagement and participation in education. Personnel preparation will therefore include a focus on ensuring specialist teachers have appropriate knowledge, understanding, and skills to shape the distal influences in this system, including, for example, how to advocate for funding, contribute to inclusive curriculum policies, participate in relevant professional development activities (Mason & McCall, 1997; NCTL, 2015), and understand how to use assessment tools to shape these influences. Practical examples include access arangements for public exams and school-wide visual impairment awareness raising (see Table 2).

Table 2
Examples of distinctive knowledge, understanding, and skills of relevance to the role of the specialist teacher of learners with visual impairments within the different bioecological systems.

Bioecological system	Focus of specialist vision teacher personnel preparation	Example of a matching practical MQ outcome (England)	Example of a matching practical competence outcome (Scotland)	Practical example
Microsystem				
The environments in which the learner actively engages in both formal and informal learning, including all social aspects.	Knowledge, understanding, and skills to facilitate interactions between the learner and the learning environment to ensure effective participation.	Create safe learning environments that encourage independence and mobility, help to develop social interaction, and support the emotional health and well-being of learners with VI. *(Teaching and Learning)*	An ability to identify, design, adapt, and evaluate appropriate materials and environmental conditions to meet the needs of the full range of children and young people with VI. *(Teaching and Learning)*	Specialist teacher advises mainstream schools on classroom layout and seating position that encourages a learner with a visual impairment to access learning independently and reduces reliance on adults.
Mesosystem				
Relationships that are developed and nurtured between home, school, community, and work.	Knowledge, understanding, and skills to develop and promote structures within the learner's microsystem and to make links with the distal influences in the outer systems.	Liaise effectively and work in partnership with parents and carers of learners with VI, providing information, advice, and support based on the principles of informed choice and the needs of the child. *(Partnership working)*	An ability to plan, develop, and evaluate their strategies for working with parents and carers, teachers, and multidisciplinary teams in support of learners with VI. *(Teaching and Learning)*	Specialist teacher visits a young blind child at home and supports parents in managing and promoting learning, encouraging them to exercise choice and control of learning strategies.
Exosystem				
This is outside the learner's direct agency and includes distal influences such as curriculum policies, budget allocations, and staffing levels.	Knowledge, understanding, and skills to help shape distal influences in order to facilitate learner engagement and participation.	Be proactive in informing of updates to the assessment processes for the different exam boards and how to access the information. *(Current legislative and educational framework)*	An understanding that most standard assessment tools are not designed or standardized to take account of the developmental needs of young learners with VI . . . all assessments should be regarded as guides requiring interpretation taking account of the circumstances of the individual learner. *(Assessment)*	Specialist teacher liaises with school staff and parents over access arrangements for public exams, drawing on best practice guidance within the vision sector to ensure that individual students are assessed appropriately.

(cont.)

Table 2
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Bioecological system	Focus of specialist vision teacher personnel preparation	Example of a matching practical MQ outcome (England)	Example of a matching practical competence outcome (Scotland)	Practical example
Macrosystem				
Key drivers for change in inclusive education at national and international levels based within the rights agenda.	Knowledge, understanding, and skills to be able to navigate distal influences such as national legislation, statutory processes, and education requirements.	Be proactive in keeping informed of changes in legislation and policy and to access relevant documents as they are released. *(Current legislative and educational framework)*	An ability to reflect on the effectiveness of their practice and of appropriate practices for learners with VI in the context of current legislation, policies, and advice for education and access, and local and national support provision. *(Specific Legislation and Policy)*	Specialist teacher advises mainstream school of their statutory responsibilities under new SEN legislation and promotes a policy of forward planning to ensure that a blind pupil can be fully included in all subjects.
Chronosystem				
This emphasizes the significant role of the specialist teacher in seeking to promote progressive and mutual accommodation between the active learner and the changing learning environments.	Knowledge, understanding, and skills to ensure the child's environment is structured to promote learning and participation, and to support the development of distinctive skills in order to afford independent learning.	Know how to encourage and support learners with VI to be independent learners. Understand how to balance providing targeted support with the need to develop independent learning. *(Teaching and Learning)*	An understanding of the range of barriers visually impaired learners face in accessing the curriculum, and of strategies for enabling access and support within different contexts. *(Teaching and Learning)*	Specialist teacher works with a school to introduce new technology to a learner that allows direct access to an interactive whiteboard, encouraging gradual reduction of direct support.

Note: MQ = Mandatory Qualification; VI = visual impairments.

The *macrosystem* incorporates the key drivers for change in inclusive education at national and international levels, and includes, for example, the prominence given to inclusion as part of an international broader human rights agenda as well as national legislative and educational frameworks. Personnel preparation will therefore include a focus on ensuring specialist teachers know and understand how to engage with, and navigate, these distal influences, including, for example, national legislation, evidence-based practice, specialist teacher education requirements, statutory assessment processes, and policy (nationally and internationally) that relates to children and young people with special educational needs. Practical examples include supporting and advising schools of their statutory responsiblities, drawing on relevant legislation (see Table 2).

The *chronosystem* emphasizes the significant role of the specialist teacher in seeking to promote progressive and mutual accommodation between the active learner and the changing learning environments to develop independence over a given time period (Hewett et al., 2017; McLinden et al., 2016). Teachers will need to understand, therefore, how to ensure that the individual child's environment is structured to promote learning and participation, as well as the extent to which additional input may be required to support the development of particular skills in order to promote independent learning over a given time frame. This can be illustrated by the teacher knowing how to balance access to the core curriculum, along with ensuring appropriate opportunities are provided to develop skills through an additional or expanded core curriculum (McLinden et al., 2016). Practical examples include introducing new technologies to encourage the gradual reduction of direct adult support in lessons (see Table 2).

Discussion

In considering the personnel preparation of specialist teachers of learners with visual impairments through the lens of a bioecological systems theory, a narrative emerges that suggests a role distinction between individual teacher *agency* and teachers acting as *agents* of change (Pantić & Florian, 2015), working in distinctive ways within and between the respective systems in a complex ecology in order to promote a learner's participation in education (McLinden & McCracken, 2016). We elaborate on this narrative further in the discussion and propose a new conceptual model that draws on the bioecological systems theory to guide future developments in this area.

In discussing Bronfenbrenner's theory of human development, Lerner (2005) notes that his vision included "optimization—the enhancement of the life course—and the production, through the person's relations within the developmental system, of positive and healthy development. His ideas focused the field on what was, and what could be, the best of being human" (p. xiii). We have argued in this paper that appropriate personnel preparation is fundamental in equipping specialist teachers of learners with visual impairments with appropriate knowledge, understanding, and skills to enhance the individual life course of these learners in order to optimize development in line with such a vision. In particular, we have emphasized the significance of the specialist teacher acting as a proactive agent of change in seeking to promote progressive, mutual accommodation between the active learner

and the changing environment over a period of time with a view to developing independence.

Such a perspective is particularly relevant, since it highlights a need to develop a proactive and engaged practitioner who can work effectively within and between each of the systems in the bioecological systems model to achieve successive learner outcomes. This perspective is supported in recent work on inclusive pedagogy by Pantić (2015) and Pantić and Florian (2015) in outlining a model for teacher agency and social justice in which they note that the preparation of teachers to act as agents of change for inclusion and social justice requires expanded competencies that include shared responsibility for the development of schools and systems. Such agency, it is argued, implies a "shift from thinking about teaching as 'implementing' policies designed by others to a focus on systematic conditions which shape practices, and understand what other actors can bring to bear on developing more inclusive educational systems and practices" (Pantić & Florian, 2015, p. 347).

Of significance is the distinction that Pantić and Florian (2015) make between individual teacher agency and the notion of agency for change, with the latter requiring an articulation of the nature of change required so as to support teacher education designers in specifying appropriate purposes and relevant preparation. Similarly, in their analysis of the relationship between agency and learning, Biesta and Tedder (2007, p. 146) present an approach to understanding agency that does not view it as an individual power but rather as "a quality of the engagement of actors with temporal-relational contexts-for-action." They argue that understanding the achievement of agency requires an understanding of the "ecological conditions" under, and through which, agency can be achieved, noting that agency is not concerned just with the ways in which we engage with our "contexts-for-action," but rather has to do with a "capacity to shape our responsiveness to the situations we encounter in our lives" (Biesta & Tedder, 2007, p. 146). The specialist teacher's responsiveness to shape proximal and distal influences will also require appropriate opportunities for critical reflection so that, as Biesta and Tedder (2007, p. 146) argue, they are able to "distance themselves from their immediate actions in order to explore and evaluate them."

Drawing on a bioecological theory, we propose a new conceptual model (see Figure 3) that draws on relevant literature (Bronfenbrenner, 2005; Hewett et al., 2017; McLinden et al., 2016; Swanwick, 2014) to articulate how such agency can be conceptualized with respect to the personnel preparation of specialist teachers of learners with visual impairments in a given educational ecology.

Limitations

One of the limitations often ascribed to the bioecological model is that it does not necessarily explain why things happen or give guidance about how to act to bring about change. However, by highlighting how specialist teacher preparation programs can be adapted through such a lens we believe that we have overcome this limitation, since programs can be designed around this model to ensure specialist teachers can act as agents of change. Another potential limitation is that the model may not be effective in situations in which the learner does not accept the specialist teacher's involvement. This might come about when, for

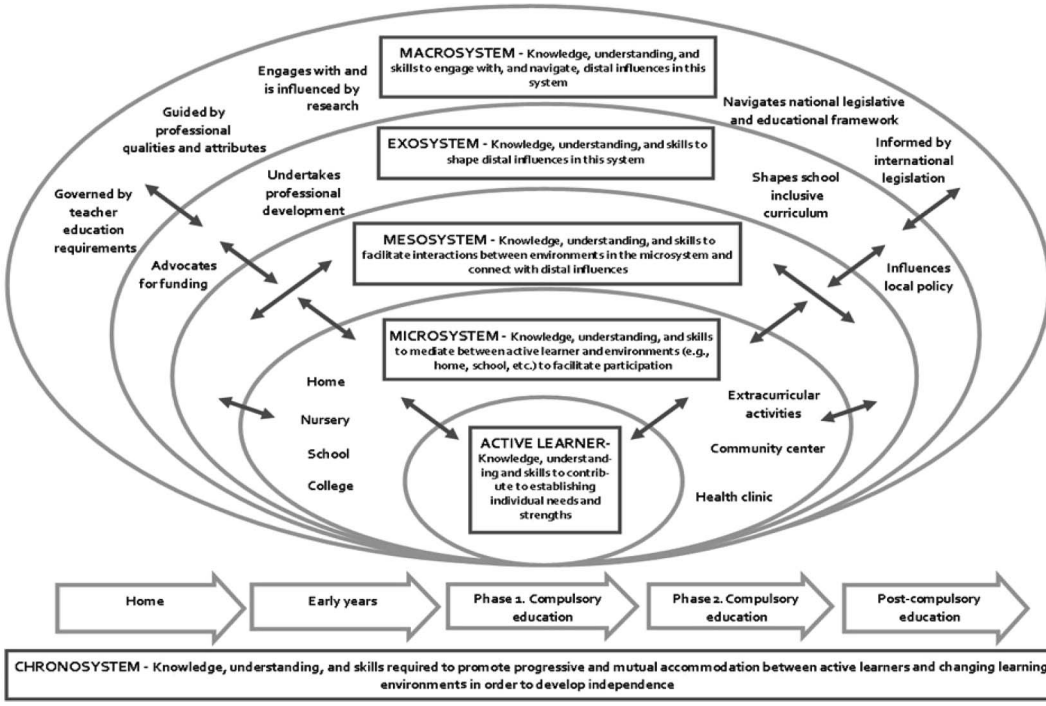

Figure 3. A bioecological model to illustrate the personnel preparation of specialist teachers of learners with visual impairments to act as potential agents of change within the respective systems (adapted from Bronfenbrenner, 2005; Hewett et al., 2017; McLinden et al., 2016; Swanwick, 2014).

example, the learners may be too overwhelmed by the issues they face. A potential practical challenge is that initially a specialist teacher education preparation program may not fit with the theoretical approach detailed and therefore a period of change and adjustment may be needed to adapt programs.

Conclusion

A shift towards greater inclusive legislation, policy, and practice in recent years within the United Kingdom has resulted in changes in curriculum design, delivery, and support for learners with visual impairments, including increasing placement in settings not specifically designated for these learners. Such changes require different knowledge, understanding, and skills, and therefore have implications for personnel preparation in order to support the learner in achieving successful outcomes. We have argued in this paper that a bioecological systems theory provides a holistic lens through which to examine the multilayered influences on the development and participation of learners with visual impairments and the agent of change role of specialist vision teachers in facilitating successful outcomes. We have also emphasized that such a focus requires acknowledgement of an *active* learner with distinctive needs developing in changing environments, supported by proactive and reflective specialist teachers who work collaboratively to promote progressive and mutual accommodation in order to achieve such outcomes. An analysis of professional roles through a bioecological systems lens affords exciting possibilities for educators involved in

personnel preparation to explicitly engage with practitioners as potential agents of change within, and between, the respective systems, in order to ensure that a learner's developmental pathway can be enhanced in accordance with the social, cultural, and political contexts within a given inclusive educational ecology.

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