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Review article

EXPANDED CORE CURRICULUM FOR STUDENTS WITH VISUAL IMPAIRMENT

Abstract

Historically, special educators and rehabilitators have found that the traditional curriculum in inclusive schools is not sufficient for students with severe visual impairment. In the educational process, in order to compensate for vision loss, the so-called expanded core curriculum must be included in their education. By applying for this program, students with visual impairment will achieve the same educational outcomes as their sighted peers.

In addition to the traditional school subjects, the expanded core curriculum also provides special subjects for the development of compensatory skills in students with visual impairment. The aim of the program is for students with visual impairments to finish school with the necessary knowledge and skills for independent living. In the system of inclusive education, this program is realized by the special educator and rehabilitator. This paper will explain the components of the expanded core curriculum for students with severe visual impairment.

Keywords: *EXPANDED CORE CURRICULUM, VISION IMPAIRMENT, INCLUSION*

Introduction

Globally, the number of students with visual impairment (both those who are blind and those with low vision) in the general education system continues to rise. Visual impairment is commonly known as a "low-incidence" and "high-needs" disability, and, therefore, triggers unique challenges to inclusive schools (Ronal National Institute for the Blind, 2017; Lieberman et al., 2019). "Low incidence disability" means that severe visual impairment is a relatively rare condition among the school-age population. For example, the prevalence of blindness in children ranges from 0.3 per thousand children in developed countries to 1.5 per thousand in developing countries (Bourne et al., 2017). "High needs" is a condition wherein a special educator and rehabilitator are required to regularly support the student in accessing the general education curriculum (Ahsan and Sharma, 2018). Students with severe visual impairment will need to learn braille, Orientation, and Mobility, as well as to use assistive technologies that involve support from qualified teachers for the visually impaired (Miyauchi, 2020).

Students who are visually impaired require additional knowledge and skills to have equal access to the standard academic curriculum with their sighted peers. To compensate for vision loss their education must incorporate the expanded core curriculum (ECC) (Hatlen, 1996). The goal of ECC (Sapp and Hatlen, 2010), is for children with visual impairments to leave school with the necessary skills to be independent adults.

The ECC

The expanded core curriculum is a curriculum created specifically for students who are visually impaired, with or without additional disabilities. The ECC provides a framework for instruction in a specialized set of vision-related skills for students with the visually impaired. While students who are visually impaired are expected to follow the same core curriculum as their sighted peers, there are certain areas in which they need specific instruction because of their vision loss.

In inclusive school, all students participate in traditional school's core subjects, such as Language, Math, History, and etc., visually impaired students should also receive additional specific instruction.

According to Sapp and Hatlen (2010), for students with visual impairments, "success in school goes beyond ensuring that students are able to graduate from high school on time" (p. 347). Namely, many concepts and skills that sighted children learn incidentally "must be systematically and sequentially taught" to children with visual impairments (Hatlen, 1996, p. 7). It is the unique developmental needs of these children that led to the formation of the ECC, the framework that guides the education of students with visual impairments (Hatlen, 1996). Because students with visual impairments generally do not learn through visual observation, qualified special educators and rehabilitators must assess these students and provide any needed instruction in all ECC areas (Hatlen, 1996; Sapp and Hatlen, 2010).

First formulated by Hatlen (1996), the ECC refers to the generally accepted nine areas of instruction that children and youths with visual impairments, including those with additional impairments, need to be successful in school, the community, and the workplace. Initially, this program included eight content areas: assistive technology, career education, compensatory access skills, independent living skills, orientation and mobility, recreation and leisure, sensory efficiency skills (previously known as visual efficiency, which includes tactile and auditory skills as well as visual skills), and social interaction skills (Kelly, 2015; Sapp and Hatlen, 2010). For the successful achievement of long-term outcomes by students with visual impairments, in 2003 an additional ninth area was added, the so-called self-determination.

The nine areas of the ECC are those that are typically learned incidentally by sighted children through observing role models. Although children who are visually impaired have little or no opportunity to learn such skills by obser-

vation, they have the opportunity to acquire them through sequential systematic instruction by a special educator and rehabilitator. Table 1 presents the ECC content areas, the unique needs of students with visual impairments for each area, and examples of skills that need to be developed in these areas.

Table 1.
Areas of the ECC

Expanded core areas	**Unique needs**	**Examples of skills and concepts**
Compensatory or access skills	Skills that students with visual impairment need to successfully access all areas of the general education curriculum at a level equitable to their sighted peers in the most independent fashion possible (Sapp and Hatlen, 2010).	*Modes of communication:* listening (audio-books), speaking (assistive communication device), writing, and reading skills (use print, braille, or tactile symbols). *Strategies for accessing printed material:* reading braille, using large print, listening to an audio recording, having a reader, or use of an optical device. Depending on the needs of the student, compensatory skills include also study skills, organizational skills, and concept development.
Social interaction	A big part of communication is visual - students with visual impairments may be less able to observe the social behavior of others. Namely, these students cannot learn social interaction skills in an incidental way. So, they need direct instructions for social interaction and belonging (Sacks, 2014; Wolffe and Kelly, 2011).	Social interaction skills are a very broad category, but generally include: *Conversation skills* (e.g. ways to beginning and end a conversation appropriately); *Nonverbal communication* (e.g. using of facial expressions and body language); *Rules of social interaction* (e.g. rules of physical contact).

Recreational and leisure	Sighted students select recreational activities in which to participate by observing a range of activities and making choices. Students with vision impairment need to be taught about the activities available and how to participate and become involved (Sapp and Hatlen, 2010).	These skills must be deliberately planned and taught to students who are visually impaired. They should focus on the development of lifelong skills, for example, hobbies, sports, games, orientation, physical fitness
Assistive technology	Assistive technology helps provide access to inaccessible educational material, equalizing the ability to access information between students with vision impairment and their sighted peers (Brown, Packer, and Passmore, 2013; Sapp and Hatlen, 2010).	Technology enhances communication and learning and expands the world of persons who are visually impaired in many ways. It makes information that is typically inaccessible readily available. Students with visual impairment use an array of technologies, for example, computers with screen enlargement and screen reading software, digital recorders, and braille writers (Wolffe and Kelly, 2011).

Orientation and mobility (O&M)	Orientation and mobility skills are needed for individuals with vision impairment to safely maneuver in their environment (Jacobson, 2012) and involve students learning about themselves and the environment in which they move, from basic body image to independent travel (Sapp and Hatlen, 2010).	O&M is the set of skills needed for students, who are visually impaired to know where they are in their environment and to move safely and independently while traveling. Students learn about themselves and their environments, including home, school, and community. O&M lessons incorporate skills ranging from basic body image, spatial relationships, and purposeful movement to cane usage, travel in the community, and use of public transportation. Having O&M skills enables students to acquire independence to the greatest extent possible, based on their individual needs and abilities.
Independent living	Independent living skills provide the tools for living independent adult lives. Although these generally come easily to sighted individuals, activities of daily living including personal hygiene, food preparation, and financial management must be taught to students with vision impairment (Sapp and Hatlen, 2010).	This area, often referred to as daily living skills, consists of all the tasks and functions that people perform, according to their abilities, to live as independently as possible. For example, hygiene, food preparation, money management, dressing, etc. As with the skills of social interaction, students who are visually impaired cannot learn these skills without direct, sequential instruction.

Career education	Career education in the core curriculum allows students to understand different career paths. Sighted students have many opportunities to learn about careers and work habits through visual observation but to compensate for the lack of visual cues about work and jobs, students with vision impairment need authentic experiences with various jobs, which will allow them to make independent decisions (Ravenscroft, 2013; Sapp and Hatlen, 2010; Wolffe and Kelly, 2011).	Career education for students with visual impairments needs to begin as early as possible and include self-awareness and career exploration activities, job-seeking skills instruction, information about job keeping, and encourage opportunities for gaining work experience. The students need to gain an understanding of the many jobs that are available from the teacher, to the lower, to the social worker, to the artist, to the gardener, and much much more. The student who is visually impaired should have the opportunity to explore a wide range of careers in a systematic, well-planned manner as they will not be able to casually observe these jobs as their sighted peers can.
Sensory efficiency	Sensory efficiency skills refer to "how well an individual receives, transmits, and interprets information about people, objects, and events in the environment, using all sensory systems" (Smith, 2014, p. 117). Sensory efficiency addresses the use of residual vision, hearing, and other senses, learning how to use optical devices, hearing aids, augmentative communication devices, and other supports to enable or enhance access to the environment (Sapp and Hatlen, 2010).	Individuals with vision impairments must learn to access information from the environment in a somewhat different way. Therefore, systematically training these students to use their remaining functional vision and tactile and auditory senses better and more efficiently is vital. For example, visual, auditory, and tactile learning: environmental cues and awareness, personal attributes, sensory attributes, use of low vision devices.

Self-determination	Self-determination refers to believing in oneself, understanding one's abilities and limitations, making choices, and having control over life experiences (Lieberman et al., 2014). Namely, self-determination skills have been related to a student's ability to explain their vision impairment, self-advocacy, and ability to accept and decline help (Agran, Hong, and Blankenship, 2007).	This area is based on the premise that students who are visually impaired must acquire specific knowledge and skills and have many opportunities to practice them to become successful. Instruction in the area of self-determination can include: *Advocate for needs* (explaining their unique needs); *Problem solves* (finding solutions of problems); and *Visual impairment resources* (access materials, resources, and agencies for people who are visually impaired).

Conclusion

Learning is much more complicated for students with visual impairment (including those with additional disabilities). Because most of these students cannot read or obtain information through the use of vision, they need to learn other skills that enable them to obtain information, such as reading braille or using optical devices that allow them to read print. Skills that are perceived incidentally by sighted students can be completely inaccessible to students who are visually impaired and must be explicitly taught to them in the education process (Willoughby and Duffy, 1989).

All students have the right to quality education, this right is also important for students with severe visual impairment. ECC is a globally recognized prerequisite to the inclusion of students with vision impairment in regular schools. Education of these students should include the traditional core curriculum as well as instruction in areas that are directly affected by a child's vision impairment (Sapp and Hatlen, 2010).

The ECC is not seen as an optional part of a student's with visual impairment educational program but an essential part that must be implemented, compensating for experiences that are typically learned incidentally by sighted children through vision (Lohmeier, Blankenship and Hatlen, 2009). Without training in the ECC skills, students who are visually impaired have difficulty accessing the traditional core curriculum (Allman, Lewis, and Spungin, 2014; Beamish and Brown, 2012). According to Sapp and Hatlen (2010), ECC components in inclusive schools should be taught by certified special educators and rehabilitators.

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