EXAMINING THE FACTORS OF SUCCESSFUL INCLUSION OF STUDENTS WITH VISION IMPAIRMENT

A REVIEW OF THE LITERATURE

By

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ABSTRACT

This review of the literature investigated the inclusion of students with vision impairment in regular schools. It examined the factors required for successful inclusion, the necessary strategies to achieve successful learning outcomes, the barriers to inclusion and the alternatives to inclusion. It was discovered that while many researchers support the concept of inclusion, there is still much work required to overcome the barriers that are prohibiting successful inclusion for students with vision impairment.
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CHAPTER ONE

INTRODUCTION

Throughout the world, many countries have adopted a system of beliefs that encompass
the notion that everyone can learn and has a right to access and be included in learning
(Nagel, 1998; UNESCO, 1994). Advocates of inclusion believe that all children have the
right to learn together, despite any disabilities (American Foundation for the Blind,
(1994) acknowledges that all students have individual needs and states that it is essential
these needs are addressed in inclusive schools. In an inclusive setting, all students have
equal access to the curriculum, with the only difference being the manner in which
information is obtained (American Foundation for the Blind, 2005a; Blatch, 1997; Nagel,
1998; Palmer, 2005a). Many researchers agree that vision loss has a major impact on
learning (American Foundation for the Blind, 2005a, 2005b; Pagliano, 2005; Palmer,
2005a). Students with vision impairment learn differently than their sighted peers
Student Support Services, 2001). Pagliano (2005) states that unlike their sighted peers,
who “learn incidentally through vision” (p. 343), students with vision impairment must
be “systematically and sequentially taught” (p. 343). They are unable to rely on visual
cues and observation, and instead must utilize their other senses (American Foundation
for the Blind, 2005a, 2005b; Jindal-Snape, 2005; MacCuspie, 1996; Palmer, 2005a,
1998).
Overview of the Project

This study contains four chapters. Chapter one introduces the project and includes the aim of the study, the problem underlying the study, the research questions, the significance of the study, definitions, and the limitations and delimitations of the study. The second chapter contains a review of the literature that answers the four research questions about the inclusion of students with vision impairment. Chapter three analyzes and interprets the literature review. Finally, chapter four draws conclusions and provides direction for further research.

Aim of the Study

This study aims to investigate the factors that lead to successful inclusion for students with vision impairment, the strategies that result in successful learning outcomes in inclusive settings, the barriers to their inclusion and the alternatives to their inclusion in regular school settings.

The Problem Underlying the Study

The majority of students with vision impairment attend their local schools (American Foundation for the Blind, 2005a; Pagliano, 1998; Corn, Bina & DePriest, 1995 as cited in Rosenblum, 2000). However, mere attendance in a regular school is insufficient to bring about inclusion (American Foundation for the Blind, 2005a; Bina, 1999; Bishop, 1997;
Celeste, 2007; Palmer, 1998). A supportive inclusive educational setting is essential in providing these students with an appropriate education so that positive learning outcomes can be achieved (Palmer, 2005a; Student Support Services, 2001). Schools need to ensure that students with vision impairment are valued as learners, have access to the curriculum and are able to participate fully in school life (American Foundation for the Blind, 2005a; Palmer, 2005a). For the inclusion of these students to be successful, it is imperative that proper supports, such as academic, technological and social are in place (American Foundation for the Blind, 2005a; Bishop, 1997). Many regular schools often lack the necessary supports to ensure successful inclusion (American Foundation for the Blind, 2005a; Hatlen, 2004).

The Research Questions

A review of the literature will be conducted in order to answer the following key research questions:

1. What are the factors that lead to successful inclusion for students with vision impairment?
2. What are the strategies that result in successful learning outcomes?
3. What are the barriers to inclusion for students with vision impairment?
4. What are the alternatives to inclusion for students with vision impairment?

Research Methods

This project encompasses an extensive review and critical analysis of professional literature on the inclusion of students with vision impairment published during the past
14 years. Journal articles, case studies, chapters from published books, the World Wide Web and various databases were used to investigate the inclusion of these students in their local schools.

The articles for this project were gathered from a variety of sources. Many articles were found using the Flinders University Library database of journals. The American Foundation for the Blind, the International Council for Education of People with Visual Impairment, the Texas School for the Blind and Visually Impaired and the Journal of Vision Impairment and Blindness offered access to an assortment of informative materials. Information was retrieved from various Canadian ministries of education. Readings from previous Flinders University School of Education courses offered access to pertinent articles.

**Significance of the Study**

Many regular schools are ill prepared to offer a successful inclusive education to students with vision impairment (American Foundation for the Blind, 2005a). The nature of inclusion dictates that all students, sighted and visually impaired, are entitled to a quality, well-rounded education (American Foundation for the Blind, 2005a; Student Support Services, 2001; UNESCO, 1994). Unfortunately, many young people with vision impairment who attend regular schools are at a disadvantage compared to their sighted peers because the system fails to accommodate all their needs (American Foundation for the Blind, 2005a; Hatlen, 2004). This study provides a review of a vast amount of
literature that addresses the inclusion of these students in regular school settings. It investigates the necessary factors for ensuring the successful inclusion of these young individuals, the achievement of positive learning outcomes and the barriers to successful inclusion. It also addresses alternatives to an inclusive educational setting, including schools for students with vision impairment. Inclusion is not always a popular choice for students with vision impairment, because they often experience social isolation in the regular school system (Hatlen, 2004, 2002). However, attendance at a separate school for students with vision impairment can be disadvantageous in that it is reported to segregate them from their sighted peers (UNESCO, 1994). This study compiles studies undertaken over the past 14 years, and as such, will contribute to the body of research on inclusion. This material could be accessed by teachers to assist them in providing better outcomes for these students in their local school setting.

My interest in the inclusion of students with vision impairment evolved when identical twins with severe vision impairment, and no other disability, enrolled in the secondary school where I teach. This experience piqued my interest in successful inclusion for students with vision impairment and led me to enroll in two Vision Impairment courses in the Flinders University School of Education. This study expands on course work completed for credit in those courses and reviews the literature to determine how successful inclusion can be a viable option.
Definitions

Adaptations – Adaptations are changes to teaching strategies, materials and assessment methods that allow students with special needs, including students with vision impairment, to achieve the prescribed learning outcomes in the curriculum (British Columbia Ministry of Education, 2006).

Educational Assistant – The educational assistant works closely with the classroom teacher in order to provide assistance to students with vision impairment (British Columbia Ministry of Education, 2006).

Expanded Core Curriculum – To ensure success in the core curriculum, students with vision impairment need to receive appropriate training in the expanded core curriculum (Hatlen, 1997). “The Expanded Core Curriculum (ECC) comprises skills and knowledge that are unique to young people with vision impairment involving compensatory academic skills including communication modes (e.g. Braille), visual efficiency, O&M, social skills, skills of everyday living, recreation and leisure skills, career education, and the use of assistive technology. These curriculum areas are designed to provide vital competencies, which are needed to ensure that students can access learning, gain independence and work in a medium that suits their needs” (Palmer, 2005b, p. 913).

Inclusion – Inclusion is a philosophy that all students should learn together, regardless of any disabilities. It is based on the belief that all students can learn, and that all should
have equal access to the curriculum and be valued participants in learning (UNESCO, 1994).

**Individual Education Plan (IEP)** – An IEP is a plan created by a collaborative team that sets learning goals and details the support and adaptations required for students to achieve prescribed learning outcomes (British Columbia Ministry of Education, 2006).

**Itinerant Teacher** – The itinerant teacher is a highly qualified teacher trained to support students with vision impairment, while working collaboratively with other members of the education team (British Columbia Ministry of Education, 2006).

**Orientation and Mobility** – Orientation and mobility trains individuals with vision impairment to move about freely, safely and independently (Hatlen, 1997).

**Limitations and Delimitations**

In order to maintain a manageable scope, this project reviews the literature on students with vision impairment who have no other disabilities and attend regular schools. It does not involve data collection. The project is also limited in terms of time and the number of words required for a coursework project. The term students with vision impairment is used to cover students with a range of visual difficulties, from blind (no useful sight) to low vision. Although important to the successful inclusion of these students, the roles of school administrators, collaborative consultative teachers and parents are not addressed in
this study. Due to the word limit, certain areas of the Expanded Core Curriculum, such as use of residual vision training, are not discussed in detail. The home schooling alternative to inclusion is also not included in this study.
CHAPTER TWO

A REVIEW OF THE LITERATURE

This chapter reviews the literature to examine the factors that lead to the successful inclusion for students with vision impairment, the strategies that result in successful learning outcomes in inclusive settings, the barriers to their inclusion and the alternatives to their inclusion in regular school settings.

The Factors Leading to Successful Inclusion for Students with Vision Impairment

Students with vision impairment have the right to access the same curriculum as their sighted peers, to achieve prescribed learning outcomes and to be valued, participating members of their class (American Foundation for the Blind, 2005a; Nagel, 1998; Palmer, 2005a). Inclusive schools celebrate the uniqueness and diversity of all students and believe that all students have the right to be educated in their neighbourhood schools (Mather, 2001; Palmer, 2005a; School District 63, 2007; UNESCO, 1994). An inclusive school culture promotes a collaborative and flexible learning environment where all students can learn with dignity (Mather, 2001; Pagliano, 1998; Palmer, 2005a; Salend, 1998; School District 63, 2007; UNESCO, 1994). The first research question explores factors that lead to successful inclusion. This section focuses on the Individual Education Plan, the Expanded Core Curriculum, qualified and trained educators, the learning
environment, special education adaptations and modifications and the physical
environment.

The Individual Education Plan

The creation of a carefully planned Individual Education Plan (IEP) is essential to the
successful inclusion of students with vision impairment (American Foundation for the
Blind, 2005a; British Columbia Ministry of Education, 2006; Student Support Services,
2001). According to UNESCO (1994), an educational team is accountable for the
education of students with special needs. Following this philosophy, a collaborative
team, made up of classroom teachers, special support teachers, administrators, school
psychologists, parents and students, must meet to outline the skill and ability levels of the
students, the goals and objectives for their learning, the recommended support services
and any required adaptations, strategies, specialized materials and assistive technology
(American Foundation for the Blind, 2005a; British Columbia Ministry of Education,
2006; Lueck, 1999; Pagliano, 2005, 1998; Salend, 1998; Student Support Services,
2001). The American Foundation for the Blind (2005a) stresses the importance of
ensuring that the learning team contains members who are experts in the field of vision
impairment education and can help ensure that students with vision impairment are fully
included. Recognizing that these students have very individual and distinct needs will
help to ensure those needs are met, which is a key factor in inclusive education (Blatch,
1997; Palmer, 2005a; Student Support Services, 2001).
Many researchers do not support the notion that students with vision impairment are automatically included in the regular school system (American Foundation for the Blind, 2005a; Bina, 1999; Bishop, 1997). Besides access to the core curriculum, these individuals have specific needs that must be addressed in the IEP (British Columbia Ministry of Education, 2006; Student Support Services, 2001). Students with vision impairment will not be able to function fully in an inclusive educational environment without training in an expanded core curriculum, which addresses their many different needs (Hatlen, 2003, 1997; Pagliano, 2005).

The Expanded Core Curriculum

For students with vision impairment to be successfully included in regular schools, they must be able to access and participate in learning equally with their sighted peers (The American Foundation for the Blind, 2005a; Palmer, 2005a). To ensure success in the core curriculum, they need to receive appropriate training in the expanded core curriculum, which can include the following areas: orientation and mobility; social skills; technology; braille; independent living skills; recreation and leisure skills; post-secondary and career education; use of remaining sight; and organizational skills (American Foundation for the Blind, 2005a, 2005b; Blatch, 1997; Hatlen, 2003, 1997; Lewis, 2002; Lueck, 1999; Pagliano, 2005; Palmer, 2005a, 2005b; Student Support Services, 2001). The expanded core curriculum needs to be interfaced with the regular curriculum (Palmer, 2005a, 2005b). The following section focuses on some areas of the expanded core curriculum that promote inclusion.
Orientation and Mobility Training

Pagliano (2005) states that orientation and mobility training allows students with vision impairment to be successfully included by enabling them to know their “position in relation to other objects in space (orientation)” (p. 336) and to be “able to move safely, independently, and purposefully about (mobility)” (p. 336). The ideal person to teach orientation and mobility is a trained orientation and mobility instructor (American Foundation for the Blind, 2005a; British Columbia Ministry of Education, 2006; Hatlen, 1997; Martinez & Moss, 1998; Student Support Services, 2001). An orientation and mobility instructor “should have a solid foundation and expertise in the areas of education of students with visual impairment and child growth and development. They should also demonstrate skills in human relations and communication” (British Columbia Ministry of Education, 2006, p. 75). For optimal benefits, orientation and mobility training should not be relegated only to the school environment; students with vision impairment need to be able to safely and independently travel out in the community, giving them the opportunity for freedom and independence equal to their sighted peers (British Columbia Ministry of Education, 2006; Student Support Services, 2001). Being able to travel independently and safely will enable these students to enjoy similar freedoms and self-sufficiency as their sighted peers (Blatch, 1997; British Columbia Ministry of Education, 2006; Martinez & Moss, 1998; Pagliano, 2005, 1998;), as well as bring about opportunities for friendships and inclusion (Martinez & Moss, 1998).
Social Skills

UNESCO (1994) states that the best practice to ensure social integration is for students to attend regular schools. According to the British Columbia Ministry of Education (2006), inclusion is “not synonymous with integration and goes beyond placement to include meaningful participation and the promotion of interaction with others” (p. V). For students with vision impairment to be successfully included in regular schools, positive social interaction with their sighted peers is essential (Celeste, 2007; Hatlen, 2004; Pagliano, 1998). Hatlen (1997) states that these students are unable to learn social interaction skills “casually and incidentally” (p. 5), so in order to socially function with their sighted peers, they must be taught proper social interaction skills (Celeste, 2007; Hatlen, 1997; Kamionka, 2002; Palmer, 1998; Wagner, 2004). According to Hatlen (1997), if social interaction skills are not learned, students with vision impairment often become social isolates, which is the opposite to the desired effect of inclusion.

Technology

Appropriate assistive technology can “enhance success in the school curriculum and…aid communication, mobility and learning” (UNESCO, 1994, p. 23). Assistive technology offers students with vision impairment increased learning opportunities, which promotes a sense of inclusion (Palmer, 1995). With appropriate assistive technology, these individuals can achieve curricular success and compete with their sighted peers (Allan & Stiteley, 2006; American Foundation for the Blind, 2005a; Gladowski, 2006; Hatlen,
1997; Downie, 1997 as cited in Palmer, 2005a; Palmer, 1995), while fostering independence and responsibility for their education (Glodowski, 2006). As students with vision impairment grow and develop, their technological needs must be evaluated and appropriate changes made in order to ensure that they have the necessary equipment to be successfully included (Allan & Stiteley, 2006; Student Support Services, 2001).

*Braille*

Being able to read and write in braille provides students with no useful vision the same opportunities to access literacy as their sighted peers. Access to literacy fosters independence, which promotes inclusion (Schroeder, 1996 as cited in Pagliano, 1998). McCall (1999) notes “the development of skills in reading and writing through Braille is a key part of the entitlement of children who are blind and well-developed Braille skills are essential if the child is to be able to access the curriculum” (p. 38). Being able to read without reliance on technology fosters independence (Student Support Services, 2001). Training in braille by a highly qualified itinerant teacher or a braillist, who is competent in braille and has been trained to teach it, is an important aspect of promoting inclusion (Pagliano, 2005; 1998; Student Support Services, 2001).

*Independent Living Skills*

It is imperative that students with vision impairment are confident in independent living skills, as this helps promote higher self-esteem and independence, which fosters inclusion
Independent living skills that need to be specifically taught include food preparation, money management, personal hygiene, time management, sex education, shopping, public transportation use, house cleaning, laundry and organization (American Foundation for the Blind, 2006b; Blatch, 1997; Hatlen, 1997; Hazecamp & Huebner, 1989 as cited in Lewis & Iselin, 2002; Pagliano, 2005, 1998; Student Support Services, 2001). Regular lessons in Home Economics or Personal Planning classes will not be sufficient because students with vision impairment do not have the luxury of learning by casual observation and find it more difficult to interact with their environment (Hatlen, 1997); therefore, direct instruction by a qualified itinerant teacher is required (Hatlen, 1997; Lewis & Iselin, 2002; Pagliano, 2005, 1998; Student Support Services, 2001). Functional daily living skills lead to independence while promoting inclusion.

Recreation and Leisure Skills

Games and athletics are important aspects of the social life of students and are an important avenue for building friendships and improving interpersonal skills (MacCuspie, 1996; Shapiro, Lieberman & Moffett, 2003). Recreation and leisure skills offer exposure to team games, athletics and general exercise, which are important in ensuring healthy living habits that can be transferred into adult life (Hatlen, 1997). While sighted students can choose in which activities they wish to partake by visually observing them, young people with vision impairment cannot, thus it is important that they are introduced to social activities and specifically taught the skills needed for social competence (Hatlen,
With proper support and training, students with vision impairment can enjoy a life of recreation and leisure, which is an important part of social inclusion (Hatlen, 1997; Pagliano, 1998).

**Qualified and Trained Educators**

Students with vision impairment require qualified and trained educators who actively promote inclusion (American Foundation for the Blind, 2005a; British Columbia Ministry of Education, 2006; Pagliano, 2005; Palmer, 2005a). The members of the learning team must work collaboratively to accommodate the needs of these students (Kamionka, 2002; Pagliano, 2005; Palmer, 2005a; Student Support Services, 2001). Educators must be flexible, caring and willing to assist the students so they can gain equal access to the curriculum (Palmer, 2005a).

**Itinerant Teacher**

A highly qualified and specially trained teacher is an essential component to inclusion of students with vision impairment. The American Foundation for the Blind (2005a) and the British Columbia Ministry of Education (2006) declare that these individuals need access to a qualified itinerant teacher. The American Foundation for the Blind (2005a) states that the itinerant teacher must have skills in providing access to the curriculum and in adapting materials and methodology so that students with vision impairment can complete the same prescribed learning outcomes as their sighted peers. It is essential that
the itinerant teacher is completely up-to-date with current resources, technology and strategies so that these students receive the most relevant education possible (Kamionka, 2002). A qualified itinerant teacher provides the support needed to ensure a positive inclusive education for students with vision impairment.

The itinerant teacher communicates with the classroom teacher and offers support in a manner that allows them to work collaboratively (Kamionka, 2002; Pagliano, 2005; Student Support Services, 2001). The itinerant teacher can propose strategies to the classroom teacher to improve access to the curriculum and to promote the inclusion of students with vision impairment (Student Support Services, 2001). While working with the classroom teacher, the itinerant teacher can assist with devising appropriate lesson goals to ensure the needs of these students are being met (Kamionka, 2002). Finding appropriate resources (Kamionka, 2002; Pagliano, 1998) and arranging vision impairment training for the classroom teacher are responsibilities of the itinerant teacher (Kamionka, 2002).

Teaching the expanded core curriculum to students with vision impairment and interfacing it with the regular curriculum are essential duties of the itinerant teacher (American Foundation for the Blind, 2005a; Nagel, 1998; Palmer, 2005a; Student Support Services, 2001). By providing training in such areas as braille, the use of existing vision, post-secondary and career education and independent living skills, the itinerant teacher increases students with vision impairments’ independence, thus
enhancing their self-concept, confidence and self-esteem, important factors that lead to successful inclusion (Student Support Services, 2001).

Classroom Teacher

The classroom teacher is very important in ensuring the inclusion of students with vision impairment. Knowledge of the impact of the vision impairment and how it affects learning is an important duty of the classroom teacher (Bishop, 1997; British Columbia Ministry of Education, 2008; Kamionka, 2002; Pagliano, 2005, 1998). Palmer (2005a) and Student Support Services (2001) affirm that the classroom teacher must diversify instruction and be willing to make adaptations to the delivery of lessons. Students with vision impairment will benefit the most from a classroom teacher who is confident in adapting teaching strategies and materials and is able to ensure that students can achieve the prescribed learning outcomes (Pagliano, 1998). In order to provide the best inclusive environment, the classroom teacher needs to interface the expanded core curriculum with the core curriculum (Palmer, 2005a). The classroom teacher must work collaboratively with the itinerant teacher to help ensure that students with vision impairment have equal access to learning (Pagliano, 2005; Palmer, 2005a; Student Support Services, 2001). It is of the utmost importance that the classroom teacher is welcoming of all students, thus creating an environment of inclusion (Bishop, 1997; British Columbia Ministry of Education, 2008; Palmer, 2005a). Rosenblum (2000) notes that some students with vision impairment experience classroom teachers who treat them insensitively, which must be avoided if inclusion is to be successful. It is also important that these students
not receive special treatment beyond their required adaptations and modifications, as this could result in envy or resentment in their sighted peers (Shea & Bauer, 1997; Student Support Services, 2001). The classroom teacher must have realistic expectations of students with vision impairment, making sure that they are neither too low nor too high (Pagliano, 2005, 1998). If the classroom teacher builds a rapport with these students, and has a positive and collaborative approach to teaching, this “will lead naturally to thoughtful lesson planning, effective teaching, and fostering the student's development of skills, knowledge, communication, responsibility, self-reliance, self-esteem, and lifelong learning” (British Columbia Ministry of Education, 2008, p.1).

**Educational Assistant**

An educational assistant is a valuable member of the team supporting the inclusion of students with vision impairment (American Foundation for the Blind, 2005a; British Columbia Ministry of Education, 2006; Student Support Services, 2001). It is important that an educational assistant undergoes training to support these students and knows when assistance is required and when it is best to leave the students to work on their own (American Foundation for the Blind, 2005a). An educational assistant works under the guidance of the classroom teacher and the itinerant teacher to ensure that students with vision impairment receive the best education possible (British Columbia Ministry of Education, 2006; Student Support Services, 2001). By collaborating with the classroom teacher and the itinerant teacher, the educational assistant can help ensure completion of learning outcomes, provide assistance with technology and facilitate peer interaction that
will result in confidence and independence, all of which promotes inclusion (British Columbia Ministry of Education, 2006; Student Support Services, 2001). In the later grades, it is important that the presence of the educational assistant does not work towards segregating the students and creating a relationship of dependence; therefore, a reduction in the help provided is necessary for fostering independence (American Foundation for the Blind, 2005a).

The Learning Environment

A positive learning environment is necessary for students with vision impairment to experience success in an inclusive educational setting. Bishop (1997) claims that before these students can be successfully included, it is essential that the school atmosphere is welcoming. It is imperative that the learning environment is co-operative and adaptable (Bishop, 1997; Palmer, 2005a) and that there is an understanding of the learning issues surrounding vision impairment (Bishop, 1997; Kamionka, 2002; Special Needs Opportunity Window, 2005). To foster inclusion, it is important to avoid having lower expectations of these students because it will “negatively affect the student’s self-concept and motivation” (Pagliano, 2005, p. 351). To help students with vision impairment be included, they must be expected to access the same curriculum and achieve comparable social goals to those of their sighted peers, (Holbrook & Koenig, 2000 as cited in Pagliano, 2005; Student Support Services, 2001), but at the same time, be recognized as having limitations due to their visual impairment that need to be addressed (Pagliano, 2005).
Special Education Adaptations and Modifications

Changes in instructional strategies and methods are necessary to accommodate students with vision impairment (American Foundation for the Blind, 2005a; Pagliano, 2005, 1998; Palmer, 2005a). An understanding of adaptations and modifications to the curriculum is required in order to promote student acceptance and to help them successfully complete learning outcomes, thus ensuring that learning can occur (American Foundation for the Blind, 2005a; Pagliano, 1998; Palmer, 2005a). Adaptations and modifications include, but are not limited to, providing extra time to complete assignments and tests, reducing assignment length, providing work in appropriate formats, such as large print or braille, assistive technology and tactile materials (Palmer, 2005a; Pagliano, 2005, 1998; Shea & Bauer, 1997). Since students with vision impairment learn differently than their sighted peers, if relevant and adequate interventions to their learning needs are not provided, they will have difficulty achieving the prescribed learning outcomes, resulting in a negative inclusive experience (American Foundation for the Blind, 2005a).

The Physical Environment

Students with vision impairment must feel safe and secure in their school and have a sense of belonging (Palmer, 2005a). Prior to their arrival at a new school, an initial visit will help these individuals familiarize themselves with their new surroundings (British Columbia Ministry of Education, 2008; Student Support Services, 2001). These students
must be able to access the school grounds and buildings (British Columbia Ministry of Education, 2008). The outside property must be kept clean and free of any obstacles, such as overgrown foliage (Palmer, 2005a). Signs and doors, on both the inside and outside of the school, must be clearly labeled with braille (Student Support Services, 2001). Hallways need to remain tidy to allow students with vision impairment to safely navigate their way throughout the school (Palmer, 2005a). Appropriate lighting, especially in stairways, is essential for the safety of these students (Palmer, 2005a). Outlining the edges of stairs and routinely used pathways with fluorescent tape can help encourage a feeling of safety (Student Support Services, 2001). Attending school in a building that addresses their needs can help foster a sense of belonging and safety, thus promoting inclusion.

**The Strategies that Result in Successful Learning Outcomes in Inclusive Settings**

All students have the right to access the prescribed learning outcomes as specified by the curriculum (American Foundation for the Blind, 2005a; British Columbia Ministry of Education, 2006; Nagel, 1998; Pagliano, 2005; Student Support Services, 2001). Learning outcomes identify what students are expected to learn at school and often include knowledge, skills, attitudes and behaviours (Manitoba Education, n.d.; University of the Arctic, n.d.). UNESCO (1994) comments that the curriculum must be adapted to meet the students’ needs, and that with support, all students can meet the prescribed learning outcomes. This section focuses on how students with vision impairment are able to achieve positive learning outcomes. In order for these students to be able to do this in
an inclusive educational environment, effective teaching strategies, including adaptations and modifications, and the expanded core curriculum, which includes assistive technology and social skill instruction must be in place.

Effective Teaching Strategies and Adaptations and Modifications

The American Foundation for the Blind (2005a, 2005b) and Pagliano (2005, 1998) state that much of the learning that occurs in regular schools relies on vision, putting students with vision impairment at a disadvantage. According to Pagliano (2005), these individuals must be specifically taught concepts that their sighted peers learn effortlessly via vision. In order to achieve learning outcomes, adaptations to instruction, lesson delivery, materials, resources, assignment formats and classroom environment must occur (Palmer, 2005a).

Teaching strategies and lesson delivery need to be diversified to enable students with vision impairment to participate in learning (Palmer, 2005a; Student Support Services, 2001). Verbalizing all instructions in detailed form ensures that students comprehend the expectations of required assignments and projects (British Columbia Ministry of Education, 2008; Student Support Services, 2001). Breaking concepts into clear chunks is beneficial to facilitate learning (Palmer, 2005a). The American Foundation for the Blind (2005a) and the British Columbia Ministry of Education (2008) state that these students may require individual instruction in order to understand what is expected of them. Students with vision impairment may also benefit from pre-lesson instruction for
more difficult concepts (Student Support Services, 2001). According to Pagliano (2005), confirming instructions can assist in ensuring comprehension. Teachers need to allow these individuals to solve problems and complete tasks on their own (Pagliano, 2005; Student Support Services, 2001). Pagliano (2005) states that students with vision impairment benefit from doing tasks on their own via “learning by doing” (p. 351); they are guided through the actions until they have gained expertise of the task. Pagliano (2005) states that they must be “explicitly taught how to make connections between parts and the whole” (p. 351). Pagliano (2005) notes that students with vision impairment may also perform “kinaesthetic re-enactments” (p. 352), where by placing their hands over the teacher’s, they observe and learn by touch. The use of real, concrete objects also works towards furthering comprehension (Pagliano, 2005, 1998; Palmer, 2005a; Special Needs Opportunity Window, 2005; Student Support Services, 2001). Using books-on-tape can be beneficial for students with vision impairment (British Columbia Ministry of Education, 2008), and allowing extra time to complete tasks and tests is another effective teaching strategy that helps ensure that these students are able to meet learning outcomes (British Columbia Ministry of Education, 2006, 2008; Pagliano, 2005, 1998; Palmer, 2005a; Student Support Services, 2001). Also, some students with vision impairment may require readers (British Columbia Ministry of Education, 2006; Connell, 1997), or fewer written questions (British Columbia Ministry of Education, 2006, 2008), for tests.

To ensure learning outcomes are met, classroom teachers should access a myriad of resources to support students with vision impairment (Bishop, 1997). Special materials and vision aids, such as tactile objects, tactile maps, tactile globes, Crammer abacus, and
braille rulers help ensure that these individuals are able to successfully access learning (Pagliano, 2005; Palmer, 2005a; Shea & Bauer, 1997). Palmer (2005a) states that diagrams and maps must be adapted to suitable formats, such as braille or tactile. The use of modified games may also be used to foster achievement (Palmer, 2005a; Special Needs Opportunity Window, 2005). Using adaptive materials can greatly increase students with vision impairments’ ability to achieve learning outcomes (Bishop, 1997; Pagliano, 2005; Palmer, 2005a).

For students with vision impairment to be able to complete assigned work and meet learning objectives, assignments and textbooks need to be adapted into an appropriate format (American Foundation for the Blind, 2005a; British Columbia Ministry of Education, 2006, 2008; Palmer, 2005a). Pagliano (2005) states that expecting these young people to transcribe work from an overhead or a blackboard will result in visual fatigue. Depending upon the degree of their vision impairment, students must be given copies of their work in appropriate formats, such as braille or large print (British Columbia Ministry of Education, 2008; Palmer, 2005a; Student Support Services, 2001). If hard copies are not available, work on the blackboard and any other visual presentation, must always be read aloud (British Columbia Ministry of Education, 2008; Pagliano, 2005; Palmer, 2005a; Special Needs Opportunity Window, 2005).

Assignments and textbooks in the appropriate format enable students with vision impairment to achieve learning goals (American Foundation for the Blind, 2005a; British Columbia Ministry of Education, 2008; Palmer, 2005a).
Palmer (2005a) notes that it is also necessary to consider the classroom environment of students with vision impairment to help with successfully achieving positive learning outcomes. Suitably sized work stations, adjustable desktops to allow students to get as close to their work as possible yet still remain comfortable and proximity to electrical outlets are factors to consider (Allan, 2002; Pagliano, 2005, 1998; Palmer, 2005a; Student Support Services, 2001). Students with vision impairment need preferential seating so they can have appropriate access to the blackboard, windows, and overhead screens where needed (Pagliano, 2005; Student Support Services, 2001). Adjusting lighting in order to help complete assigned work is an important consideration, which can be achieved by adding extra lighting or dimming the lights, depending on the needs of the students (Allan, 2002; British Columbia Ministry of Education, 2008; Pagliano, 2005; Palmer, 2005; Student Support Services, 2001). Modifying the classroom environment maximizes the opportunity for these students to learn alongside their classmates (Palmer, 2005a, Student Support Services, 2001).

The Expanded Core Curriculum

Individuals with vision impairment must be taught specific skills that enable them to access learning and compete with their sighted peers on a level playing field (Bishop, 1997; Hatlen, 1997; Palmer, 2005a, 2005b; Student Support Services, 2001). In order to meet regular curriculum learning outcomes, students with vision impairment need to be taught skills covered in the expanded core curriculum, such as accessing assistive technology and social skill instruction (Hatlen, 1997; Palmer, 2005a, 2005b).
Assistive technology, both low tech and high tech, helps improve the basic skills of students with vision impairment, giving them the ability to access literature, attain information and complete assignments and tests (Allan & Stiteley, 2006; American Foundation for the Blind, 2005c; Student Support Services, 2001). Technology allows these students to achieve learning outcomes in a variety of ways, as is discussed in the following section (D’Andrea & Barnicle, 1997; Palmer, 1995; Student Support Services, 2001).

Non-electronic equipment can be very helpful with completing course work (Student Support Services, 2001). For example, students with vision impairment who can write can use dark-lined paper to lessen any eyestrain associated with written work (Allan & Stiteley, 2006; British Columbia Ministry of Education, 2008; Pagliano, 1998; Student Support Services, 2001). Reading stands allow students to have their books as close to themselves as needed, without dealing with muscle fatigue (Student Support Services, 2001). Aids for accomplishing math tasks, such as braille rulers, abacus and braille protractors, help students to meet prescribed math learning goals (Student Support Services, 2001). A slate and stylus enables students with vision impairment to produce work in braille, allowing them to take notes in class (Student Support Services, 2001). Electronic technological devices are excellent tools students can use to gain access to the core curriculum (Allan & Stiteley, 2006; American Foundation for the Blind, 2005c; Atlantic Provinces Special Education Authority, n.d.b; Palmer, 1995; Student Support
Services, 2001). Electronic dictionaries equipped with speech synthesis enable students to look up the meaning of words quickly and efficiently (Atlantic Provinces Special Education Authority, n.d.b; Student Support Services, 2001). A closed circuit television (CCTV) allows students to view enlarged print on a television screen, giving them access to course material (Allan & Stiteley, 2006; Atlantic Provinces Special Education Authority, n.d.b; British Columbia Ministry of Education, 2008; Student Support Services, 2001). Students can use portable braille notetakers, with either a regular or braille keyboard, and thereby take notes and complete assignments in class (Allan & Stiteley, 2006; Atlantic Provinces Special Education Authority, n.d.b; D’Andrea & Barnicle, 1997; Student Support Services, 2001). Using portable braille notetakers, which often come with speech synthesizers, students can transfer documents to a computer and can print documents in both braille and regular print (Allan & Stiteley, 2006; D’Andrea & Barnicle, 1997; Student Support Services, 2001). With the help of other assistive technology, such as speech synthesis and braille translation software, computers give students with vision impairment a myriad of opportunities, such as using a word processor and accessing the Internet, to access prescribed learning outcomes (D’Andrea & Barnicle, 1997; Palmer, 1995; Rex, Koenig, Wormsley & Baker, 1994). Assistive technology, in all its forms, allows students with vision impairment to achieve the same learning outcomes expected of their sighted peers (Allan & Stiteley, 2006; Glodowski, 2006; Palmer, 1995).
Social Skill Instruction


Positive social skill training is critical to the development of social competence (Celeste, 2007; Hatlen, 1997; Palmer, 1998). Social interaction skills, such as establishing and maintaining relationships, regulating emotions and understanding emotional cues need to be directly taught (Isley, O’Neil, Clatfelter, & Park, 1999, Lafreniere & Dumas, 1992, Parke, Cassidy, Burks, Carson, & Boyum, 1992 as cited in Celeste, 2007). Palmer (1998) states that students with vision impairment need instruction in understanding other people’s behaviour, comprehending their own behaviour, problem solving and conflict resolution. Some of the other areas in which these students need instruction are: making and maintaining eye contact (Griffin-Shirley & Nes, 2005; Warren, 1984 as cited in
Jindal-Snape, 2004; Palmer, 1998; Student Support Services, 2001), initiating contact with peers (Celeste, 2007; Jindal-Snape, 2004), comprehending non-verbal communication (Jindal-Snape, 2004; Student Support Services, 2001) and preventing blindisms (Palmer, 1998; Student Support Services, 2001). Educating sighted peers about the effects of vision impairment can help them understand the differences and obstacles that students with vision impairment face, which can assist in promoting inclusion (Bishop, 1997; MacCuspie, 1996; Pagliano, 1998). Feedback, from both teachers and sighted students, regarding unsuitable behaviour is necessary for students with vision impairment to evaluate their inappropriate behaviour and thus amend their actions (Jindal-Snape, 2005, 2004; Peavey & Leff, 2002). Students with vision impairment also need to understand the concept of personal space, so as not to make others feel uneasy in their presence (Student Support Services, 2001). Ongoing intervention is required to ensure that appropriate behaviours are continually reinforced (Celeste, 2007; Wagner, 2004).

The Barriers to Inclusion for Students with Vision Impairment

Despite the supports that are implemented, barriers to inclusion for students with vision impairment exist. The American Foundation for the Blind (2005a, 2005b) and Hatlen (2004) claim that many of these individuals are not receiving an ideal education in regular schools. This section looks at the following barriers to inclusion: social factors, a lack of knowledge of vision impairment and students’ needs, a lack of trained teachers, a lack of understanding that the expanded core curriculum interfaces with the regular
curriculum, lack of time for the expanded core curriculum and reduced funding for specialized resources.

Social Factors

A large number of social factors prove to be barriers to inclusion for students with vision impairment, who often experience poor social inclusion while attending regular schools (Hatlen, 2004; Shapiro et al., 2003). Many of these students lack appropriate social interaction skills (Jindal-Snape, 2004; Palmer, 1998; Wagner, 2004), have poor self-image and suffer from low self-esteem (Tuttle & Tuttle, 2004, Warren 1994 as cited in Griffin-Shirley & Nes, 2005; Lopez-Justica, Pichardo, Amezcua & Fernandez, 2001), which combined with a deficiency of social skills, often ends up translating into social rejection and isolation from their sighted peers (Bishop, 1997; Hatlen, 2004; Wolffe & Sacks, 1997 as cited in Kim, 2003; Kekelis & Sacks, 1992 as cited in Palmer, 1998). Students who have problems initiating social contact with their sighted peers can have difficulties with social inclusion (Celeste, 2006 as cited in Celeste, 2007; Jindal-Snape, 2004). Since sighted students often have minimal knowledge of the differences and difficulties caused by vision impairment (Peavey & Leff, 2002; Rosenblum, 2000), other factors, including lack of non-verbal communication skills (Palmer, 1998; Student Support Services, 2001), not maintaining eye contact (Jindal-Snape, 2004; MacCuspie, 1996; Palmer, 1998), abnormal physical appearance caused by their vision impairment (Wolffe, 2000 as cited in Griffin-Shirley & Nes, 2005; MacCuspie, 1996) and the existence of blindisms, such as eye pressing and arm flapping (MacCuspie, 1996; Palmer,
1998) work to further isolate these students from their sighted peers. Other differences, such as assistive technology, may contribute to further isolation (Wolffe, 2000 as cited in Griffin-Shirley & Nes, 2005; Hatlen, 2004). Until social issues are dealt with, students with vision impairment cannot truly experience successful inclusion (Hatlen, 2004).

Hatlen (2004, 2002) states that students with vision impairment are not experiencing successful social integration in inclusive regular school settings, despite social skills being a part of the expanded core curriculum. He claims that they do not learn social skills by imitation or observation, and there is often not enough time in the school day to teach them the necessary social skills (Hatlen, 2004, 2002). Hatlen (2004, 2002) believes that students who remain solely in regular schools are being set up for social isolation.

**Lack of Understanding of Vision Impairment and the Needs of the Students**

Most classroom teachers have had limited exposure to students with vision impairment (American Foundation for the Blind, 2005a) and do not fully understand the effects of vision loss; and hence do not know how to accommodate their needs (Palmer, 1998). Hatlen (2002) states that many educators generalize all disabilities and do not distinguish between different ones, such as blindness or cerebral palsy. Hatlen (2002) and Lewis (2002) comment on the disservice that a one-size-fits-all education system does to students whose specific and individual needs may not be addressed.
Lack of Trained Teachers

Classroom teachers often have minimal training in the education of students with vision impairment (American Foundation for the Blind, 2005a). Some districts attempt to address the issue by offering training on specific topics related to vision impairment (British Columbia Ministry of Education, 2006), but this is often not enough. As a result, students may have teachers who do not have the appropriate knowledge and skills to understand their limitations (American Foundation for the Blind, 2005a).

Furthermore, a shortage of orientation and mobility specialists and qualified itinerant teachers exists, which means that there is often a lack of support from appropriate specialists (American Foundation for the Blind, 2005b; Bina, 1999; Bishop, 1997; Hatlen, 2003; Johnson & Lawson, 2006). Often, even if there is an itinerant teacher, large caseloads and limited time results in students with vision impairment not receiving the intensity of services needed to learn the necessary skills required to achieve academically in their local school (American Foundation for the Blind, 2005a; Hatlen, 2004).

Lack of Understanding that the Expanded Core Curriculum Interfaces with the Regular Curriculum

The importance of the expanded core curriculum may not be understood by many educators (Bishop, 1997; Hatlen, 1997; Palmer, 2005b; Rosenblum, 2000). Instead of
recognizing the necessity of interfacing the expanded core curriculum with the regular curriculum and understanding that the skills learned from the expanded core curriculum will assist students with vision impairment with accessing the core curriculum, some teachers dismiss it as an extra duty that they are unprepared and unqualified to carry out (Hatlen, 1997; Palmer, 2005b). Palmer (2005b) notes that some teachers do not comprehend the importance of the expanded core curriculum. According to Hatlen (1997), teachers either do not recognize that these students are different from their sighted peers, or they are unwilling to take on the responsibility of teaching the expanded core curriculum. Until teachers are fully informed about the importance of the expanded core curriculum, they will continue to view it as an unnecessary burden (Palmer, 2005b).

**Lack of Time for the Expanded Core Curriculum**

The American Foundation for the Blind (2005a), Hatlen (2004, 2002) and Lueck (1999) note that there is often not enough time in the school day to effectively teach the expanded core curriculum. The American Foundation for the Blind (2005a) believes that the amount of time necessary for training in the expanded core curriculum makes it challenging for students with vision impairment to be fully included in the regular school system. They will either have to spend too much time out of the classroom, or they will not have enough expanded core curriculum training (American Foundation for the Blind, 2005a). If these students are concentrating the majority of their time learning the core curriculum, they are missing key components to training in the expanded core curriculum (American Foundation for the Blind, 2005a). The American Foundation for the Blind
(2005a) believes that for students with vision impairment to have sufficient training in the needed areas of the expanded core curriculum, they should have access to a variety of educational program options, including pull-out time from regular classes, special classes or attending a school for the blind for a determined period of time. However, Kamionka (2002) concludes that these students should remain in the classroom as much as possible. He does not offer any solutions for them to learn the expanded core curriculum while remaining in the classroom. Bishop (1997) confirms that training in the expanded core curriculum is challenging due to time constraints, but insists that it is too important to ignore. Bishop (1997) offers suggestions of Saturday school, summer classes, or after school training by the itinerant teacher as solutions for inadequate time for teaching the expanded core curriculum.

Insufficient Funding for Specialized Resources

The American Foundation for the Blind (2005a) states that in order to have equal access to the curriculum and to compete with their sighted peers, students with vision impairment require books in appropriate media, materials, equipment and technology. These specialized materials can be quite costly (American Foundation for the Blind, 2005a; Bishop, 1997). Assistive technology for these students is very costly (Atlantic Provinces Special Education Authority, n.d.b). For example, a braille notetaker can cost from $6000 to $9000 CAD, depending upon the number of cells in the refreshable braille display, and a Mountbatten Brailler is approximately $5000 CAD (Atlantic Provinces Special Education Authority, n.d.b). Unfortunately, there is often not enough funding to
afford these required specialized resources (American Foundation for the Blind, 2005a; Bishop, 1997).

**The Alternatives to Inclusion for Students with Vision Impairment**

Depending upon the individual needs of students with vision impairment, attending an inclusive school may not be the best option. This section discusses schools for students with vision impairment, as well as an array of other options for these young individuals.

**Schools for Students with Vision Impairment**

Schools for students with vision impairment may be an attractive option for some students with vision problems (Phillips & Corn, 2003; Special Needs Opportunity Window, 2005). These specialized environments are able to offer highly qualified and trained teachers and programs that are tailored to the specific needs of these students (Connell, 1997; Hatlen, 2003; Phillips & Corn, 2003; Special Needs Opportunity Window, 2005). Due to the presence of highly qualified and trained teachers, schools for students with vision impairment are skilled at implementing the expanded core curriculum (Bina, 1999; Connell, 1997; Special Needs Opportunity Window, 2005). Low teacher student ratios facilitate more opportunity for individual help from teachers (Connell, 1997; Hatlen, 2003; Phillips & Corn, 2003). Furthermore, current adaptive materials and technology are readily available (Connell, 1997; Phillips & Corn, 2003). Schools for students with vision impairment are built to accommodate the access needs of
the students, with the following areas taken into consideration: sizeable lockers with benches, appropriate window levels, appropriate lighting and textured floors (Ontario Ministry of Education, 2002).

Students with vision impairment may feel more comfortable in social situations and may be more willing to join extracurricular activities with other students who have vision problems (Phillips & Corn, 2003). Since many of the students who attend these special facilities live on campus, an increase of independent living skills occurs (Bina, 1999; Special Needs Opportunity Window, 2005). Hatlen (2004) states that the desirable interpersonal and social skills that are learned at schools for students with vision impairment are readily transferable to the sighted world.

Array of Options

Many researchers agree that offering an array of educational placement options is most beneficial to students with vision impairment (American Foundation for the Blind, 2005a, 2005b; Bina, 1999; Bishop, 1997; Hatlen, 2004, 2003, 2002). Students may initially attend a special school, build their expanded core curriculum skills (American Foundation for the Blind, 2005a; Bina, 1999; Hatlen, 2003), and then transfer to their neighbourhood school (Bina, 1999; Hatlen, 2003). For example, students may be referred to the Texas School for the Blind and Visually Impaired (TSBVI), and after their specific needs are met, they will transition back to their local school (Hatlen, 2003).
Another alternative is where schools for students with vision impairment work collaboratively with regular schools, sharing their expertise and offering their services to all students with vision impairment (American Foundation for the Blind, 2005b; Bishop, 1997; Hatlen, 2003). For example, the TSBVI offers courses in local schools, allowing students with vision impairment in an inclusive setting to access classes specifically designed for them (Hatlen, 2003). Bishop (1997) is a proponent of the use of schools for students with vision impairment as multi-faceted support centres, offering such services as teacher training, consultations and technology assistance. W. Ross MacDonald School in Canada offers support to teachers of students who attend regular schools, as well as providing specialized materials (Special Needs Window Opportunity, 2005).

Summer sessions sponsored by schools for students with vision impairment are another alternative for these students (Bina, 1999; Bishop, 1997; Hatlen, 2003). In Canada, the Atlantic Provinces Special Education Authority (APSEA) provides opportunities for sessions on request of the itinerant teacher (Student Support Services, 2001), while students in Texas can enroll in enrichment classes at the TSBVI during the summer (Hatlen, 2003). Some schools for students with vision impairment offer outreach programs for students who attend regular schools (American Foundation for the Blind, 2005b; Bina, 1999; Hatlen, 2003). These options allow the students with vision impairment to be exposed to the sighted world during the school year, but to not feel completely isolated from other visually impaired peers.
Bishop (1997) comments that both schools for students with vision impairment and regular schools have positive and negative attributes, and that the best solution is to utilize both options based upon the needs of each student. Whichever educational option is chosen, the decision must be made by students with vision impairment and their parents (American Foundation for the Blind, 2005b; Bishop, 1997).

**Summary**

As discovered in the review in the literature, for students with vision impairment to experience successful inclusion in regular schools, many factors must be in place. It must be recognized that these students have individual needs, which must be addressed to ensure that prescribed learning outcomes are achieved (Blatch, 1997; Palmer, 2005a; Student Support Services, 2001). In order for these students to access the core curriculum, training in an expanded core curriculum that is interfaced with the regular curriculum is essential (Hatlen, 1997; Palmer, 2005a, 2005b). A welcoming, collaborative environment, with highly trained and qualified teachers who diversify instruction, understand the impact of vision loss and have appropriate expectations of these students, is imperative for ensuring inclusion (Bishop, 1997; British Columbia Ministry of Education, 2008; Kamionka, 2002; Pagliano, 2005, 1998; Palmer, 2005a). Students with vision impairment also need a physical environment that allows them to safely access the school grounds and buildings (British Columbia Ministry of Education, 2008; Palmer, 2005a; Student Support Services, 2001).
In order to meet learning outcomes, students with vision impairment require effective teaching strategies that accommodate their distinct needs (British Columbia Ministry of Education, 2008; Pagliano, 2005; Palmer, 2005a; Student Support Services, 2001). Adaptations to instruction and lesson delivery are essential (American Foundation for the Blind, 2005a; British Columbia Ministry of Education, 2008; Pagliano, 2005; Palmer, 2005a; Student Support Services, 2001). Ensuring that adaptive materials and resources are available (Bishop, 1997; Pagliano, 2005; Palmer, 2005a), as well as supplying work and textbooks in appropriate formats (American Foundation for the Blind, 2005a; British Columbia Ministry of Education, 2006, 2008; Palmer, 2005a), helps to ensure that learning outcomes are achieved. Adapting the classroom environment to suit the students’ individual needs also facilitates learning (Palmer, 2005a, Student Support Services, 2001). These students require access to a variety of technology that will enable them to operate independently in the classroom (Allan & Stiteley, 2006; American Foundation for the Blind, 2005c; Student Support Services, 2001). Also important is the need for social skill instruction to ensure that social learning outcomes are achieved (Hatlen, 1997; MacCuspie, 1996; Palmer, 1998; Rosenblum, 2000).

Unfortunately, the literature review also revealed that barriers to successful inclusion exist. Students with vision impairment often have low self-esteem (Tuttle & Tuttle, 2004, Warren 1994 as cited in Griffin-Shirley & Nes, 2005; Lopez-Justica, Pichardo, Amezqua & Fernandez, 2001) and lack social skills (Jindal-Snape, 2004; Palmer, 1998; Wagner, 2004), which often result in social isolation (Bishop, 1997; Hatlen, 2004; Wolff & Sacks, 1997 as cited in Kim, 2003; Kekelis & Sacks, 1992 as cited in Palmer, 1998).
Teachers often do not understand the distinct needs of these students, which impedes successful inclusion (Hatlen, 2002). A lack of trained teachers may result in students not receiving the level of education they deserve (American Foundation for the Blind, 2005b; Bina, 1999; Bishop, 1997; Hatlen, 2003). As well, many teachers do not understand the importance of interfacing the expanded core curriculum with the regular curriculum (Hatlen, 1997; Palmer, 2005b). Furthermore, there is not enough time in the school day to successfully train students with vision impairment in the expanded core curriculum (American Foundation for the Blind, 2005a; Hatlen, 2004, 2002; Lueck, 1999). Finally, inadequate funding for resources serves as a further barrier to inclusion (American Foundation for the Blind, 2005a; Bishop, 1997).

The literature discussed two alternatives to inclusion for students with vision impairment. Schools for students with vision impairment offer trained teachers, tailor-made programs (Connell, 1997; Hatlen, 2003; Phillips & Corn, 2003; Special Needs Opportunity Window, 2005), accessible buildings (Ontario Ministry of Education, 2002) and current resources and technology (Connell, 1997; Phillips & Corn, 2003). Another alternative to inclusion is utilizing both the regular school system and schools for students with vision impairment to accommodate all the needs of the students (American Foundation for the Blind, 2005b; Bina, 1999; Bishop, 1997; Hatlen, 2003).

This concludes the review of the literature. The next chapter analyzes and interprets the key information reviewed in chapter two.
CHAPTER THREE

ANALYSIS, INTERPRETATION AND DISCUSSION

The inclusion of students with vision impairment in public schools promotes the belief that all children have the right to learn together, despite any disabilities or differences (Nagel, 1998; UNESCO, 1994). UNESCO (1994) and the British Columbia Ministry of Education (2006) believe that, unless there are extreme circumstances, all children should attend regular schools. Attending public schools provides opportunities for students with vision impairment to interact and compete with their sighted peers, thus promoting inclusion in society (Student Support Services, 2001). Current research indicates that there are many factors that need to be in place for successful inclusive education; however, there is also evidence to suggest that there are numerous reasons inclusion does not always happen. This discussion analyzes and interprets some of the key factors from the review of the literature.

The Factors Leading to Successful Inclusion for Students with Vision Impairment

The first research question focused on the factors that lead to the successful inclusion of students with vision impairment. The key factors discussed are a flexible and welcoming environment, collaboration and understanding the effects of vision impairment on learning.
Clearly from the evidence presented, classroom teachers need to embrace students with vision impairment into their classrooms. It also emerged that due to the low incidence of students with vision impairment, it is likely that classroom teachers may only teach one or two of these students during the course of their career. Some classroom teachers may resent the expectation that they alter their teaching strategies and the delivery of course material for one student. Some may feel that training in vision impairment education is not useful and consumes a lot of time that could be used in other aspects of their job. Research on classroom teachers’ attitudes towards students with vision impairment, and how to change any negative attitudes, would be beneficial towards improving the inclusion of students with vision impairment.

Without flexibility, classroom teachers will not be able to provide a successful inclusive education for students with vision impairment. Since most classroom teachers do not have training in vision impairment education, it is probable that changing their teaching methods and lesson delivery may be a challenging undertaking. Looking outside of the box and creating new and diverse lesson plans is vital for the successful inclusion of these students. The potential attitude that changing teaching methods is a cumbersome task can be alleviated with the realization that once changes are made, they can be referred to for subsequent lessons. Classroom teachers can build upon ideas and create meaningful lessons that accommodate all students in the class. In fact, many strategies, such as chunking instructions and verbalizing information, can be helpful, not only to students with vision impairment, but to all students. Classroom teachers need to get into the mindset that being adaptable may be beneficial to all members of the class, which
would make their job easier in the future. At the same time, this flexibility will provide a good education for students with vision impairment.

A number of sources argue that collaboration is a main component of successful inclusion and that a close relationship between the classroom teacher and the itinerant teacher is essential to ensure that the needs of students with vision impairment are being met (Kamionka, 2002; Pagliano, 2005; Palmer, 2005a; Student Support Services, 2001). This may be a precarious situation, making it important that the itinerant teacher strives to preserve the authority of the classroom teacher, thus making the classroom teacher confident that his or her authority is not challenged (Kamionka, 2002). The itinerant teacher may feel that the classroom teacher is not doing enough to foster positive inclusion for students with vision impairment. Both may be territorial and find it difficult to accept each other’s role in the classroom. Without the supportive working relationship of the itinerant teacher and the classroom teacher, these students may not receive a successful inclusive education. The classroom teacher must understand that the itinerant teacher can provide solutions and can help ease any frustration and anxiety that they may be experiencing when trying to accommodate these students. The itinerant teacher needs to realize that he or she is entering a situation where the classroom teacher is not only the subject expert, but is also striving to create a cohesive classroom environment where all the students are equally accessing the curriculum. Research on the dynamics between classroom teachers and itinerant teachers, and how to encourage and establish a positive working relationship, would be helpful towards promoting successful inclusion for students with vision impairment.
The research indicates that to ensure the successful inclusion of students with vision impairment, it is essential that educators understand the effects that vision loss has on learning and recognize that these students have distinct needs that must be addressed (Bishop, 1997; British Columbia Ministry of Education, 2008; Kamionka, 2002; Pagliano, 2005, 1998). However, since many classroom teachers do not fully comprehend the extent to which vision loss impacts learning, they may not be providing a suitable education that accommodates all the students’ needs. It may be argued that understanding the effects of vision loss is difficult, due to the vast differences in vision impairment, such as low vision to no useful vision. However, because of the low incidence of students with vision impairment, this argument is unacceptable. A professional development session that literally puts classroom teachers into the shoes of these students, as has been attended by the author in School District #60 in British Columbia, Canada, should be mandatory. For example, specialized glasses that distort vision can give classroom teachers an idea as to what these students are experiencing. Using blindfolds while traveling through the school can help classroom teachers understand the importance of orientation and mobility training. Providing braille samples can help classroom teachers comprehend how students with no useful vision read. Understanding vision loss is important for classroom teachers to comprehend how these students learn and providing opportunities for this to occur is a relatively easy venture.
The Strategies that Result in Successful Learning Outcomes in Inclusive Settings

The second research question focused on the strategies that lead to successful learning outcomes. The key factors addressed in this section are adapting teaching strategies, providing specialized resources and materials and social skill instruction.

The evidence proves that changes to teaching strategies are vital if students with vision impairment are to achieve learning outcomes (Palmer, 2005a; Student Support Services, 2001). As mentioned earlier, some classroom teachers might be hesitant about making changes to their repertoire of lessons and strategies. This attitude must be pre-empted by offering professional development sessions that provide training in how to adapt their lessons and delivery. As well, providing all classroom teachers with resource binders containing strategies and sample lessons will help to ensure that these essential adaptations occur. Again, emphasizing the fact that these adaptations benefit all students may help to promote acceptance of these changes.

The research indicates that to achieve learning outcomes, students with vision impairment need access to specialized resources and materials (Bishop, 1997). School districts must provide these resources, despite the cost, because all students have the right to access learning. What needs to be realized is that once a tactile object is made, or a novel is translated into braille, these learning tools can be used for subsequent students with vision impairment. Therefore, until new textbook editions or updated maps are purchased, these students can use the same texts and materials that former students with
vision impairment used, just as sighted students reuse textbooks and materials. Without equal access to the core curriculum, students with vision impairment will be unable to fully experience successful inclusion.

It is apparent that social skill instruction is necessary for promoting positive social interaction (Hatlen, 1997). However, this is proving to be difficult to accomplish (Hatlen, 2002, 2004). Due to limited time in the school day, the intensive social interaction instruction that is needed by many students with vision impairment is limited. Many classroom teachers are not trained in vision impairment education; therefore, teaching social interaction skills may be challenging. As mentioned earlier, many teachers feel overworked, so adding social skill instruction to their workload may be considered burdensome. Although much of the literature addresses this issue, social inclusion does not seem to be improving for students with vision impairment. Why is this the case? Is social skill instruction actually occurring? Do changes to the type of training need to take place? Is the training ongoing or just done through one-time workshops? For successful inclusion to occur, further research for answers to these questions is required.

**The Barriers to Inclusion for Students with Vision Impairment**

The third research question focused on the barriers to successful inclusion. Unfortunately, there proved to be many. Social factors, lack of funding for materials and
technology, untrained teachers, a shortage of specialized teachers and issues surrounding
the expanded core curriculum are discussed in this section.

A review of the literature found that a severe lack of social skills seriously impedes the
fostering of relationships and successful inclusion (Bishop, 1997; Hatlen, 2004; Palmer,
1998). A vital component of inclusion is social acceptance and interaction amongst
peers, but this is not occurring for most students with vision impairment in regular
schools. This is one of the largest drawbacks to successful inclusion. If students with
vision impairment are placed in inclusive educational settings without the necessary
social interaction skills, the likelihood that they will have a positive experience is
diminished. If these students are experiencing great success academically, but are
socially isolated, then the inclusive educational experience is null and void. All students
need to feel that they belong and are accepted by their peers. Suffering through social
isolation is not a healthy manner in which to experience their school years. The fact that
social isolation is so prevalent amongst students with vision impairment may be reason
enough to seriously reconsider inclusion in regular schools. This is a very difficult
choice to make. Although sending these students to school for students with vision
impairment may provide better opportunity for fostering relationships, it segregates them
from their sighted peers. Further research into reducing the social barriers to inclusion is
crucial.

The literature recognizes the importance of specialized resources and technology for
ensuring successful inclusion and achieving learning outcomes for students with vision
impairment (American Foundation for the Blind, 2005c; Student Support Services, 2001). Unfortunately, a shortage of funding for adaptive equipment means that these students may not have access to essential assistive technology. Different methods to obtain financial support would be beneficial, though school districts, via government funding, are ultimately responsible for providing funding for assistive technology and specialized resources. UNESCO (1994) suggests that a central resource centre that provides technology and support for each school district would be an economically feasible option. In the Canadian Atlantic provinces, the organization APSEA provides services, such as assistive technology loans, adaptive materials and other subsequent support to children with vision impairment up to the age of 21 (Atlantic Provinces Special Education Authority, n.d.a; Student Support Services, 2001). This is a system that other governments and school districts might consider investigating.

According to the literature, many classroom teachers have no, or at best minimal, training in visual impairment education (American Foundation for the Blind, 2005a). Some may have access to intermittent professional development sessions, but this may not be enough for classroom teachers to feel adequately prepared to provide a good education to students with vision impairment. Without continual access to an itinerant teacher, classroom teachers may feel overwhelmed by the adaptations and modifications required to ensure that these students can achieve learning outcomes. Many teachers already feel that their workload is onerous enough without having to rethink and restructure their teaching style. Furthermore, classroom teachers may not be trained in how to use assistive technology and may not be able to assist students when technological difficulties
arise. It is unfair for students with vision impairment to not be able to access their
technology because of a lack of knowledge of how to troubleshoot potential problems.
However, inclusion means providing an equal education to all students, not just those
without disabilities. In order to overcome any anxieties or obstacles associated with
teaching students with vision impairment, training is imperative. It would be interesting
to learn more about the level and nature of training that classroom teachers receive in
preparation for teaching students with vision impairment. It would also be beneficial to
know if the training provided is, in reality, enough to make them comfortable with the
adaptations and modifications that must be made, and if it is reflected in the success of
the student.

The literature proves that qualified and trained specialists are imperative to ensuring
successful inclusion (American Foundation for the Blind, 2005a; British Columbia
Ministry of Education, 2006; Pagliano, 2005; Palmer, 2005a), but unfortunately, there is
a shortage of qualified itinerant teachers and orientation and mobility instructors
(American Foundation for the Blind, 2005b; Bina, 1999; Bishop, 1997; Hatlen, 2003;
Johnson & Lawson, 2006). This means that students with vision impairment attending
regular schools may not be receiving the specialized training that they require due to
reduced time with a specialist. Inadequate training in the expanded core curriculum
results in students with vision impairment not being able to compete equally with their
sighted peers. Being unable to travel independently does not promote self-sufficiency or
the opportunity to build friendships, but rather creates dependence upon others, which
does not foster inclusion. It would be interesting to know the extent of the shortage and
how to promote enrollment in vision impairment training courses. Perhaps other solutions need to be investigated. Again, a centralized agency may be able to ensure that itinerant teachers are being utilized efficiently and that students are receiving the support they require. School districts can work co-operatively with each other, sharing the services of an itinerant teacher if suitable. A lack of specially trained teachers is very detrimental to the education of these students. Students with vision impairment cannot be left to flounder without adequate support.

The research finds that the expanded core curriculum, interfaced with the regular curriculum, is essential for ensuring that students with vision impairment are able to meet required learning outcomes and achieve successful inclusion (Hatlen, 1997; Palmer, 2005b). However, according to the literature, this often is not occurring. Since many classroom teachers feel unprepared to teach it, or feel that it is burdensome and does not fall within their realm of responsibility, and rely solely on the itinerant teacher to train students in the expanded core curriculum, research on why classroom teachers have this attitude would be beneficial to solving some of these issues surrounding inclusion. If classroom teachers feel overwhelmed with teaching students with vision impairment, then they most likely will not want to take on the responsibility of interfacing the expanded core curriculum within the regular curriculum. Perhaps, as Palmer (2005b) suggests, classroom teachers just do not understand the significance of this for the education of these students. Education on interfacing the expanded core curriculum with the regular curriculum is necessary. Until classroom teachers recognize the importance of interfacing the expanded core curriculum with the regular curriculum, and possess the
required skills to do so, students with vision impairment will not reach their full potential in regular schools.

Furthermore, the research shows that there is not enough time in the school day for adequate training in the expanded core curriculum (American Foundation for the Blind, 2005a; Hatlen, 2004, 2002; Lueck, 1999). Some researchers suggest that to effectively learn the skills in the expanded core curriculum, young people with vision impairment may have to attend separate classes or partake in special courses at schools for students with vision impairment (American Foundation for the Blind, 2005a). However, removing these individuals from their regular classes defeats the purpose of an inclusive education, where they should remain with their classmates as often as possible (Kamionka, 2002; UNESCO, 1994). The skills learned in the expanded core curriculum are vital, but effectively incorporating them into public schools proves to be challenging for inclusion.

The Alternatives to Inclusion for Students with Vision Impairment

The fourth research question focused on the alternatives to inclusion for students with vision impairment. This section discusses schools for students with vision impairment and accessing both these special schools and regular schools.

Due to the barriers to inclusion, many believe that other educational options need to be explored. Schools designed for students with vision impairment offer many
opportunities; however, by the sheer fact of their segregation, these schools do not promote inclusion into the sighted world. On the one hand, students with vision impairment usually have limited access to trained teachers and are often socially isolated at regular schools; therefore, enrollment in a specialized setting may improve their social inclusion, plus give them access to highly qualified teachers who will provide them with courses and programs that best accommodate their needs. On the other hand, enrollment in schools for students with vision impairment does not necessarily promote inclusion into the sighted world, where, after graduation, these students will have to integrate without the support provided in schools. It is ultimately up to the parents and the students to make this difficult choice between the two educational options.

Utilizing both schools for students with vision impairment and public schools can be another option for these individuals. This allows the students to receive intensive training in their disability specific skills, while attending an inclusive educational setting at their neighbourhood school. However, what about students who do not reside near a school for students with vision impairment? What if the costs of attending summer camps or special classes are too expensive for families to afford? Are there organizations that will offset the financial costs for students with vision impairment to attend such events, including travel, food and accommodations for the students and a parent or guardian? Will the skills achieved in a summer camp or during a special class carry over and be enough to ensure successful inclusion? These questions need to be addressed when considering the array of possible options for students with vision impairment.
Summary

The literature indicates that the concept of inclusion, of all students learning together, is a worthy goal. Many factors are required for successful inclusion; yet many barriers exist that often prevent a positive inclusive educational experience for students with vision impairment. From the review of the literature, it was evident that organizations such as UNESCO, and government education sites, such as the British Columbia Ministry of Education and the Newfoundland and Labrador Department of Education, all fully support inclusion. However, organizations and people who work directly with students with vision impairment, such as the American Foundation for the Blind and the superintendent of the TSBVI, Phil Hatlen, tend to view full inclusion as an idealistic, though unrealistic, goal. Since the vision impairment experts question the validity of full inclusion, one must take notice and continue with further research on reducing the barriers in order to improve inclusion for students with vision impairment.
CHAPTER FOUR

CONCLUSION

Inclusion of all students has become a highly desired educational model, allowing for all students to learn together, despite any disabilities (American Foundation for the Blind, 2005a; British Columbia Ministry of Education, 2006; UNESCO, 1994). This study reviewed the literature to examine how to successfully include students with vision impairment in regular schools. This chapter offers a conclusion to the findings of this study.

The first research question studied the factors needed to ensure successful inclusion. Recognizing that students with vision impairment have distinct needs that must be addressed in an IEP is a key factor for inclusion (Student Support Services, 2001). In order to achieve the same prescribed learning outcomes as their sighted peers, students with vision impairment need training in the expanded core curriculum to help them hone the skills required to access the core curriculum (Hatlen, 1997). Trained and qualified specialist teachers, as well as classroom teachers, are essential to the successful inclusion of these students (American Foundation for the Blind, 2005a; Pagliano, 2005; Palmer, 2005a). Collaboration and communication is fundamental to the nature of the teaching relationship of the itinerant teacher and the classroom teacher (Pagliano, 2005; Palmer, 2005a; Student Support Services, 2001). Students with vision impairment must be made to feel welcome, both by their teachers and sighted peers (Bishop, 1997; Palmer, 2005a;
Student Support Services, 2001), as well as by the physical environment (Palmer, 2005a; Student Support Services, 2001). Social acceptance is a vital factor for ensuring successful inclusion (Celeste, 2007; Hatlen, 2004, 1997).

The second research question reviewed the factors that are required to achieve successful learning outcomes. Adaptations to materials, assignment format, strategies and lesson delivery are important for ensuring that these learning outcomes are met (British Columbia Ministry of Education, 2008; Pagliano, 2005; Palmer, 2005a; Student Support Services, 2001). Modifying the classroom to accommodate these students (Allan, 2002; Pagliano, 2005, 1998; Palmer, 2005a Student Support Services, 2001) and providing access to appropriate assistive technology (Allan & Stiteley, 2006; American Foundation for the Blind, 2005c; D’Andrea & Barnicle, 1997; Palmer, 1995; Student Support Services, 2001) is essential for achieving learning outcomes. Since social inclusion is of the utmost importance for ensuring positive inclusion, it is imperative that regular social skill instruction occurs (Celeste, 2007; Wolffe, 2000 as cited in Griffin-Shirley & Nes, 2005; Hatlen, 1997; MacCuspie, 1996; Palmer, 1998; Rosenblum, 2000).

Un fortunately, as the third research question discovered, significant barriers to successful inclusion for students with vision impairment exist. One of the main barriers is lack of social skills and poor social integration (Celeste, 2007; Palmer, 1998). Students with vision impairment often have low self-esteem and low self-concept (Tuttle & Tuttle, 2004, Warren, 1994 as cited in Griffin-Shirley & Nes, 2005; Lopez-Justica et al., 2001) and do not have the required social skills to successfully integrate with their sighted peers.
Students with vision impairment often do not initiate social contact (Celeste, 2006 as cited in Celeste, 2007; Jindal-Snape, 2004) and usually face social isolation in public schools (Hatlen, 2004). Another barrier to successful inclusion is the lack of understanding by classroom teachers that the expanded core curriculum must be interfaced with the regular core curriculum (Hatlen, 1997; Palmer, 2005b). Plus, there is often not enough time in the school day to successfully teach the skills in the expanded core curriculum (American Foundation for the Blind, 2005a; Hatlen, 2004, 2002; Lueck, 1999). This situation is not helped by the shortage of itinerant teachers and orientation and mobility instructors (American Foundation for the Blind, 2005b; Bina, 1999; Hatlen, 2003; Johnson & Lawson, 2006). As well, a lack of funding for specialized resources, such as assistive technology, works to prevent these young people from accessing prescribed learning outcomes and being successfully included in regular schools (American Foundation for the Blind, 2005a; Bishop, 1997).

Finally, alternatives to inclusion were studied. The main alternative is schools for students with vision impairment, which offer highly trained and qualified teachers, distinct programs geared to vision impairment education and current adaptive equipment and materials (Connell, 1997; Hatlen, 2003; Phillips & Corn, 2003; Special Needs Opportunity Window, 2005). These special schools offer social contact with other students with vision impairment, which can have a positive impact on their social life (Hatlen, 2003; Phillips & Corn, 2003). There is also an array of other options that make use of both schools for students with vision impairment and regular schools (American Foundation for the Blind, 2005a, 2005b; Bina, 1999; Bishop, 1997; Hatlen, 2004, 2003,
Suggestions that schools for students with vision impairment can be used as resources for regular schools, providing support and assistance in the education of all students with vision impairment, including training, technology support and short term placements, offer solutions on how to access both regular school and schools for students with vision impairment (Bishop, 1997; Hatlen, 2003).

Although the concept of inclusion was supported by much of the literature, there is evidence that much work needs to be done to overcome the barriers that exist for students with vision impairment in regular schools. Further research on how to improve classroom teacher training is essential to help with areas such as creating a welcoming environment, flexibility, collaboration and understanding the needs of the students. Solutions for the shortage of specialized teachers are necessary. Strategies on how to improve social inclusion must be researched to help with the successful inclusion of these students. Funding needs for specialized materials, resources and technology must be addressed. Discovering methods to help successfully incorporate the expanded core curriculum into the inclusive education setting is imperative. Investigating the benefits and feasibility of utilizing schools for students with vision impairment might help with addressing some of the students’ needs in inclusive settings. If students with vision impairment are to be successfully included, and have a positive educational experience, it is vital that these issues are researched and that solutions are provided. Students with vision impairment deserve, as do all students, to attend schools where all their needs are met and they have a sense of belonging.
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