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## Perspectives and learning culture regarding the inclusion of visually impaired learners in mainstream classrooms: a qualitative rapid review

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### Abstract

**Objective:** This study reports on the inclusion of visually impaired (VI) learners in mainstream classrooms. In order to eliminate illiteracy, UNESCO's Sustainable Development Goal (SDG) number 4 on education emphasized "inclusion and equity" as basic fundamentals for "quality education and learning." As schools support and implement this campaign, there are points in this advocacy that are left uncovered or overlooked by the implementer. This rapid review intends to synthesize the perceptions and learning culture occurring within the mainstream classrooms where learners with visual impairment are included.

**Methods:** This rapid review performed a systematic search through ERIC, Google Scholar, JSTOR, PubMed, ResearchGate, Semantic Scholar, and Springer databases to identify articles published in English in peer-reviewed journals from 2001 to 2019. Included publications were considered if they discussed mainstreaming VI learners in class. The entire selection process revealed 75 published studies which qualified for review and thematic analysis.

**Results:** Three major themes on the perspective of the teachers and students, together with appropriate teaching/learning strategies for VI learners in mainstream classrooms were identified.

**Conclusion:** In an inclusive setting, teachers and VI learners face challenges requiring attention and intervention from proper authorities. Recommendations for further research were suggested.

**Keywords :** inclusion, learning, learner support, perspective, teaching, visual impairment

### I. Introduction

Communication is better and more comprehensive when there is visual significance. When a child is visually impaired, this can profoundly affect his/her learning process; and this is not limited to language learning. Visual information is important to help learners see and interpret what is happening in their environment. Moreover, it plays a significant role in learner's development of concepts.

There is a medical and educational definition of visual impairment. It can be congenital: conditions present from birth such as cortical visual impairment, glaucoma, nystagmus, optical nerve hypoplasia, and retinopathy, among others. It may also be acquired later in life due to cataract, eye nerve trauma, accidents, nutrition deficiency, etc.<sup>1)</sup> According to the World Health Organization (WHO), "among children, the causes of vision impairment vary

considerably across countries"<sup>2)</sup> and there were at least 18.939 million visually impaired (VI) children aged 0 to 14 years old across the globe in the year 2010<sup>3)</sup>.

These children face a multitude of challenges as they step out of their homes. As these VI children/learners join the school setting, their impairment greatly influences and sometimes becomes a barrier in the teaching-learning processes. Advantageously, special education schools have been established to provide for the needs of these VI learners. However, enrollment in such schools is expensive and, in many cases, unaffordable to most families. Furthermore, special education schools make the learners feel left-out and separated from the "normal" society<sup>4)</sup>.

To address this issue, the United Nations Educational Scientific and Cultural Organization (UNESCO) is promoting inclusive education<sup>5)</sup> as an approach to the

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Education for All (EFA) initiative which was first launched in the 1990s aiming to educate “every citizen in every society”<sup>6)</sup>. Inclusive education aims to ensure that “each individual has an equal opportunity” and “barriers are removed in limiting the participation and achievement of all learners, respecting diverse needs, abilities and characteristics and eliminating all forms of discrimination in the learning environment”<sup>7)</sup>. In line with the Sustainable Development Goal number 4 on Education and the Education 2030 Framework for Action, this view of education emphasizes inclusion and equity as laying the foundations for quality education. Across the globe, this ambitious vision is a great challenge to the implementing schools in providing a standard learning experience of appropriate quality to all of their learners, and especially to the VI.

Several studies have been conducted on the inclusion of VI learners in the mainstream class focusing on the physical environment, acceptance, etc. However, the existing literature tends to highlight specific aspects like resource access<sup>8)</sup> and principals’ attitude<sup>9)</sup> without providing a bigger picture on the perspectives and the learning culture of inclusion in the mainstream class which prompted this review.

## II. Methods

This qualitative rapid review<sup>10-12)</sup> aimed to synthesize the existing information about the perspectives and learning culture regarding the inclusion of VI learners in mainstream classrooms. Specifically, it intended to:

- Determine the perspectives of teachers regarding inclusion of VI learners;
- Determine the perspectives of VI learners regarding inclusion; and
- Determine the learning culture regarding the inclusion of VI learners in mainstream classrooms.

### 1. Search Strategy

Data were mined from seven databases, namely ERIC, Google Scholar, JSTOR, PubMed, ResearchGate, Semantic Scholar, and Springer to gather original papers published in English.

### 2. Study Selection

The database search produced 127 items (Figure 1). Ten duplicates were then removed. The titles, abstracts, and keywords of the remaining 117 records were screened for possible eligibility.

### 3. Data Extraction

Forty-two original research articles and other cited reviews about visual impairment were excluded: these consisted of studies which tackled inclusive mainstreaming in the classroom and learning culture but focused on the relationship to other medical conditions (like stroke, diabetes, mental retardation) or learners with multiple learning disabilities in addition to visual impairment; studies conducted before 2001; and studies for which neither the abstract nor the text could be accessed (Figure 1).

Seventy-five articles published from 2001 to 2019 were considered potentially relevant because they made mention of the perspectives of teachers and VI learners regarding inclusion in mainstream classrooms as well as the learning culture.

### 4. Data Analysis

The included data in this study were analyzed using thematic analysis. The 75 accessed abstracts and articles<sup>Note 1</sup> were coded and interpreted in order to categorize and discover significant and recurring themes from the studies discussing learners with visual impairment. Figure 1 illustrates the research process flowchart.

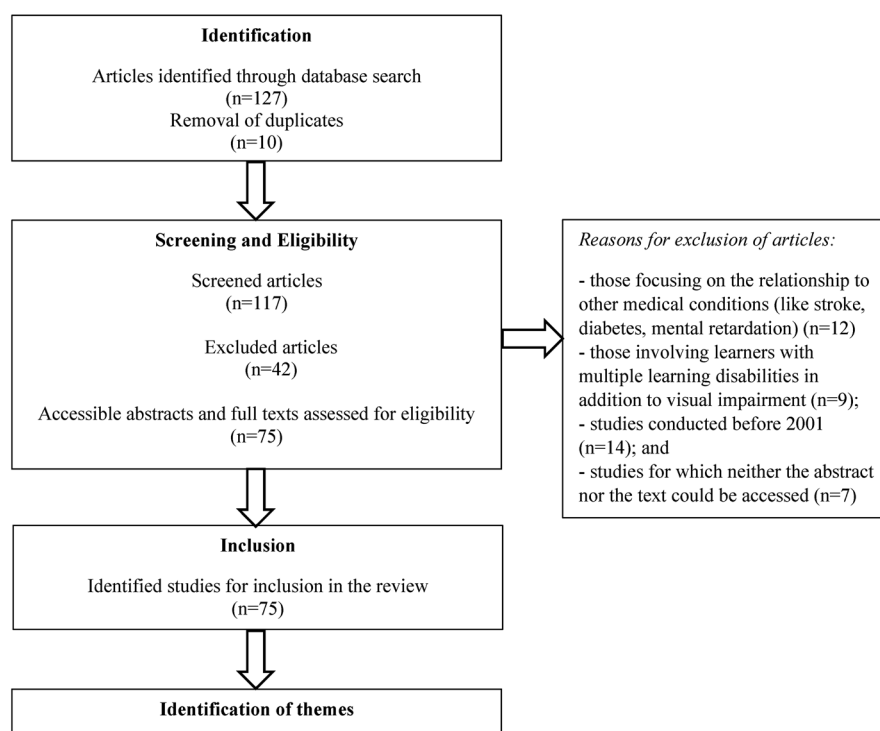


Figure 1 Research process flowchart

Table 1 Summary of included studies

Continent	No. of studies	Percentage	No. of countries involved	Percentage
<b>Africa</b>	<b>23</b>	<b>30</b>	<b>11</b>	<b>22.4</b>
<b>Asia</b>	<b>12</b>	<b>16</b>	<b>13</b>	<b>27</b>
Australia	5	7	1	2
<b>Europe</b>	<b>14</b>	<b>19</b>	<b>8</b>	<b>16</b>
North America	6	8	3	6.1
South America	4	5	2	4.1
Unidentified	11	15	11	22.4
<b>Total</b>	<b>75</b>	<b>100%</b>	<b>49</b>	<b>100%</b>

### III. Results

This rapid review focused on 75 published works<sup>Note 1</sup> on classroom mainstreaming of visually impaired learners from 49 countries.

#### 1. Overview of the included studies

The current study included 75 research articles, represented across the globe. The majority of the included articles originated from Africa 23 (30%), Europe 14 (19%), and Asia 12 (16%). Meanwhile, South America 4 (5%) and

Australia 5 (7%) had the least number of studies and countries involved. There were 11 studies whose research locality could not be identified (Table 1).

#### 2. Themes

Data analysis identified the following themes: (1) inadequate training, (2) fear, bullying, and discrimination, and (3) preference of tactile learning materials and Braille.

##### 1) Inadequate training

The most prominent theme in the reviewed articles was

the teachers' feeling of inadequacy because of insufficient professional and in-service training on teaching and managing learners with visual impairment<sup>13)</sup>. A remarkable 51% of the collected articles presented the same findings towards the failure of the school and authorities to provide professional training<sup>14)</sup> leading to the "one-size-fits-all" teaching method employed by the teachers during class. This feeling of incompetence among the teachers restricts their full understanding<sup>15)</sup> and leads to a failure to embrace the principles of inclusion.

## 2) Fear, bullying, and discrimination

The second theme accounted for 23% of the collected studies which highlighted students' apprehensions towards inclusion. Learners with visual impairment go to school with high levels of anxiety because of their disability. They are apprehensive of things that might happen to them while they are at school and away from their comfort zone. This is further complicated by situations when some of their classmates make fun of them or bully them because of their disability<sup>16)</sup>; if they cannot defend themselves from the bullies, they end up feeling that the inclusive setting is not safe for them. Moreover, VI learners feel discriminated when teachers give lessons and class activities that do not consider their disability<sup>17)</sup>. Learners feel that they are not included because it is hard for them to participate and complete the tasks designed mainly for sighted learners<sup>18)</sup>. This is an after-effect and highly related to the first theme of this study.

## 3) Preference of tactile learning materials and Braille

The third theme accounted for 20% of the collected studies. There seems to be a consensus among teachers and learners that tactile learning materials (LMs) and Braille are found to be effective in teaching science and math subjects, literacy, and reading skills to VI learners in mainstream classes. As compared to the use of acoustic aids and large prints, the preference of tactile LMs<sup>19)</sup> and Braille<sup>20)</sup> is supported by the VI learners' improved participation with these learning modes. Nevertheless, sighted learners may

also enjoy lessons taught using tactile LMs and Braille where it could help them empathize with classmates with visual impairment<sup>21)</sup>.

## IV. Discussion

This qualitative rapid review aimed to shed light on the perspectives and learning culture regarding the inclusion of visually impaired learners in mainstream classrooms. Data analysis identified themes within the following areas: (1) inadequate training, (2) fear, bullying, and discrimination, and (3) preference of tactile learning materials and Braille.

It is compelling to note that despite these schools' explicit campaigns and the implementation of inclusive education, teachers do not receive the proper training<sup>22, 23)</sup> that they need to cater to the needs of these VI learners. This makes teachers feel powerless and diffident whenever they handle such learners. Moreover, mainstream schools and classes pose a threat to the welfare of the VI learners because of the learners' fear, their susceptibility to bullying, and discrimination during class activities<sup>16-18)</sup>. The latter is an alarming finding because schools have to serve as student-friendly knowledge centers and not as institutions where VI learners can be harmed. Nevertheless, a significant theme that emerged from our analysis strengthens findings from other studies; this theme refers to the strong preference of teachers and learners towards tactile learning materials and Braille compared to new and creative modes in teaching and learning of the visually impaired<sup>24, 25)</sup>. It was revealed from the review that teachers in mainstream classrooms who are teaching VI learners are having a hard time in assisting and addressing the needs of these learners. These teachers are pointing out the need for training programs to improve their teaching. Here are some of the findings from reviewed articles highlighting professional unpreparedness: "Educators have limited access to knowledge related to the inclusion of VI learners in lectures and feel unprepared to this scenario"<sup>26)</sup>; "Classroom teachers in the regular classes lacked training in

handling children with VIs<sup>27)</sup>.

“However, teachers need to receive specialist training in order to assist children more effectively<sup>28)</sup>”.

This lack of staff support from school and relevant authorities could lead to a domino effect and eventually defeating the purpose of inclusion in mainstream or regular classrooms.

The second finding indicated that VI students attending mainstream classes feel discriminated during class activities<sup>26)</sup> and, despite having a school support system, reveal that they “could not think of anything good” about their experiences<sup>29)</sup>. Additionally, VI learners have to make major adjustments to adapt to their new environment; although the teachers serve as a link to the class, VI learners stress that “they need to have their feelings and abilities acknowledged...<sup>30)</sup>”, but end up stressed because “Every semester was like climbing a new hill. Teaching professors how to help me in my courses takes so much energy<sup>29)</sup>”. These reports from previous studies indicate that inclusion of VI learners may be causing them more emotional, social, or intellectual stress than what is stated as ideal in the EFA goal 3 of UNESCO<sup>7)</sup>.

From the aforementioned findings, the only positive and promising practice in inclusion seems to be the teachers’ and learners’ preference for tactile learning materials<sup>21)</sup> and Braille. Since the start of the 21<sup>st</sup> century, experts have been developing innovative ways to teach VI learners. Some of these use technology and acoustic aids, while others make use of magnifiers and large prints. The use of tactile learning materials and Braille does not only aid in teaching VI learners, but also stimulates the curiosity of both sighted and VI learners<sup>23)</sup>. Initiatives like these give VI learners more educational support to keep up with their sighted classmates<sup>31)</sup>.

It is presumed that schools are doing their best to implement the EFA mandate to decrease illiteracy; this action is commendable because, even if there is a lack of

teaching personnel who are trained to teach VI learners, teachers are doing their best despite their feelings of “incompetence” to provide standard education to the VI learners. It is important to provide support to teachers; this could be achieved by sending them to capability training and seminars which will prepare, equip, and reinforce them in teaching and managing a class with VI learners.

Schools have to ensure an inclusive, friendly, and harm-free environment to provide a holistic learning experience, especially to VI learners. The use of more samples from industrialized countries is recommended to increase reliability in a future study.

## V. Conclusion

The UNESCO international initiative Education for All (EFA) mandates schools to embrace the inclusion of all types of learners including VI in the mainstream or regular class; however, this ambitious move may carry with it easily overlooked drawbacks while being implemented. The main point of this qualitative rapid review is to determine the perspectives and learning culture regarding the inclusion of VI learners in mainstream classrooms. This study thematically analyzed the information gathered from the collection of 75 published studies in a short period. Thought-provoking findings showed that some teachers feel incompetent to teach VI learners due to inadequate training. Moreover, it revealed the threat felt by these learners because of fear, bullying, and discrimination in mainstream classes. Concerning the learning culture, tactile learning materials and Braille are preferred by both VI learners and teachers. Schools and concerned authorities must provide professional support to teachers and ensure the safety of VI learners in particular to provide a holistic education.

Although these themes emerged from analyzing studies in 49 countries, there is a need for future investigations and further research in this area from industrialized countries providing larger scope and points of comparison.

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# Note 1

## Descriptive information for each study included in the rapid review

Author, Year & Title	Source	Main Theme	Country of Study
[1] M. Brown, T. L. Packer, A. Passmore (2013). Adequacy of the Regular Early Education Classroom Environment for Students with Visual Impairment.	Journal	Inadequate training	Australia
[2] F. E. Dakwa (2009). Views of Children with Visual Impairment on the Challenges of Inclusion.	Journal	Inadequate training	Zimbabwe
[3] C. Gray (2005). Inclusion, Impact and Need: Young Children with a Visual Impairment.	Journal	Inadequate training	Northern Ireland
[4] R. Hewett, G. Douglas, M. McLinden, S. Keil (2017). Developing an inclusive learning environment for students with visual impairment in higher education: progressive mutual accommodation and learner experiences in the United Kingdom.	Journal	Inadequate training	United Kingdom
[5] K. Lamichhane (2017). Teaching students with visual impairments in an inclusive educational setting: a case from Nepal.	Journal	Inadequate training	Nepal
[6] M. Maguvhe (2015). Teaching science and mathematics to students with visual impairments: Reflections of a visually impaired technician.	Journal	Inadequate training	South Africa
[7] B.C. Korir (2015). The Perception of Students and Teachers on the Integration Programme of Students with Visual Impairment in Secondary Schools: A Case of Ainamoi Sub County, Kericho County, Kenya.	Journal	Inadequate training	Kenya
[8] P. Dea, D. Negassa (2017). Instructional Practices and Challenges in Inclusion of Students with Visual Impairment in Selected Government Secondary Schools in Harari Region.	Journal	Inadequate training	Zimbabwe
[9] R.A. Zaman. (2015). Mainstreaming Students with Visual Impairment in Secondary Science Education (IX-X): Curriculum Consideration and Assistive Technologies.	Journal	Inadequate training	Bangladesh
[10] I. Žolgar, M.L. Stopar. (2016). Pre-service teachers' confidence in teaching students with visual impairments in inclusive education.	Journal	Inadequate training	Slovenia
[11] Okoye, F., Adirika, B. (2019). The Challenges of Implementing Inclusive Education for Visually Impaired Undergraduates in Nigerian Tertiary Institutions.	Journal	Inadequate training	Nigeria
[12] F.E. Dakwa (2014). Inclusion of Children with Visual Impairments in Regular Schools – A Zimbabwean Perspective.	Journal	Inadequate training	Zimbabwe
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[14] E. Asamoah, K. Ofori-Dua, E. Cudjoe, A. Abdullah, J.A. Nyarko (2018). Inclusive Education: Perception of Visually Impaired Students, Students without Disability, and Teachers in Ghana.	Journal	Inadequate training	Ghana
[15] M.A.C. Onyema (2018). The challenges of inclusion of visually impaired students in regular classroom activities in Nigeria.	Periodical	Inadequate training	Nigeria
[16] P. Lynch, S. McCall, G. Douglas, et al. (2010). Impact of Educational Inclusion on Children with Visual Impairment in Malawi.	Periodical	Inadequate training	Malawi
[17] D.P.M. Gallimore (2005). Multiculturalism and Students with Visual Impairments in New South Wales, Australia.	Journal	Inadequate training	Australia
[18] L.R. Opdal, S. Wormnes, A. Habayeb (2001). Teachers' Opinions about Inclusion: A pilot study in a Palestinian context,	Journal	Inadequate training	Palestine
[19] G. Beyene, Y. Tizazu (2011). Attitudes of Teachers towards Inclusive Education in Ethiopia.	Journal	Inadequate training	Ethiopia
[20] T. Majoko (2016). Inclusion in early childhood education: pre-service teachers voices.	Journal	Inadequate training	Zimbabwe
[21] V. Mamah, P. Deku, S. Darling, S. Avoke (2011). University Teachers' Perception of Inclusion of Visually Impaired in Ghanaian Universities.	Journal	Inadequate training	Ghana
[22] C.R. Muñoz, V.V. Arboleda, R. García (2016). Including students with visual impairment in a Colombian state university: a descriptive case study.	Proceedings	Inadequate training	Colombia
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[24] K. de Verdier, U. Ek (2014). A Longitudinal Study of Reading Development, Academic Achievement, and Support in Swedish Inclusive Education for Students with Blindness or Severe Visual Impairment.	Journal	Fear, bullying, and discrimination	Sweden
[25] C. Morris (2014). Seeing sense: the effectiveness of inclusive education for visually impaired students in Further Education.	Online document	Fear, bullying, and discrimination Resource access	United Kingdom
[26] W.R. Otyola, G.M. Kibanja, M.M. Anthony (2017). Benefits of Inclusive Education for Visually Impaired Students in Public Universities in Uganda.	Journal	Inadequate training	Uganda
[27] Villa, R., Thousand, J., Nevin, A., Liston, A. (2005). Successful Inclusive Practices in Middle and Secondary Schools.	Periodical	Resource access Inadequate training Collaboration	U.S.A. (California)
[28] C. Morris, U. Sharma (2011). Facilitating the Inclusion of Children with Vision Impairment: Perspectives of Itinerant Support Teachers.	Journal	Inadequate training	–
[29] P. Lynch, S. McCall, G. Douglas (2011). Inclusive educational practices in Kenya: Evidencing practice of itinerant teachers who work with children with visual impairment in local mainstream schools.	Journal	Resource access Inadequate training	Kenya
[30] F.M. D'Andrea (2012). Preferences and Practices among Students who Read Braille and use Assistive Technology.	Journal	Innovative materials Preference of Braille (Tactile) Technology	U.S.A.
[31] L.P. Rosenblum, T.S. Herzberg (2015). Braille and Tactile Graphics: Youths with Visual Impairments Share Their Experiences.	Journal	Tactile teaching materials	U.S.A.
[32] Vita, A.C. Kataoka, V.Y. (2014). Blind students' learning of probability through the use of a tactile model.	Journal	Tactile teaching materials	Brazil
[33] J. Wiazowski (2014). Can Braille Be Revived? A Possible Impact of High-End Braille and Mainstream Technology on the Revival of Tactile Literacy Medium.	Journal	Preference of Braille (Tactile)	–
[34] C.B.F. Mnyanyi (2014). Changing teachers' practices in regular schools enrolling children with visual impairment.	Book	Tactile teaching materials Collaboration	Tanzania
[35] A.M. Howard, C.H. Park, S. Remy (2012). Using Haptic and Auditory Interaction Tools to Engage Students with Visual Impairments in Robot Programming Activities.	Journal	Tactile teaching materials	U.S.A.
[36] J. Leuders (2016). Tactile and acoustic teaching material in inclusive mathematics classrooms.	Journal	Acoustic Tactile teaching materials	–
[37] Y. Kobrossy (2019). The inclusion of visually impaired students in a Lebanese private school: a case study.	Journal	Acoustic Funding need Inadequate training	Lebanon
[38] S. Bhan (2012). Inclusion of Children with Visual Impairment in India.	Journal	Inadequate training	India



[39] R. Malehlanye (2019). Teachers' views on inclusive education for secondary school visually impaired learners: An example from Lesotho.	Journal	Fear, bullying, and discrimination Inadequate training	Lesotho
[40] M. Buultjens, J. Stead, M. Dallas (2002). Promoting social inclusion of pupils with visual impairment in mainstream schools in Scotland.	Online document	Fear, bullying, and discrimination Inadequate training	Scotland
[41] C. Brydges, P. Mkandawire (2017) Perceptions and Concerns about Inclusive Education among Students with Visual Impairments in Lagos, Nigeria.	Journal	Fear, bullying, and discrimination Inadequate training	Nigeria
[42] W.R. Otyola, G.M. Kibanja, A.M. Mugagga (2017). Challenges Faced by Visually Impaired Students at Makerere and Kyambogo Universities.	Journal	Fear, bullying, and discrimination Inadequate training	Uganda
[43] L. Luque, L. Brandão, E. Kira, et al. (2018). On the inclusion of learners with visual impairment in computing education programs in Brazil: practices of educators and perceptions of visually impaired learners.	Journal	Preference of Braille (Tactile) Fear, bullying, and discrimination Inadequate training	Brazil
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		Curriculum implementation	

## 通常学級に視覚障がいのある生徒を含めた教育に関する展望と 学習文化：rapid review による検討

Faramarz SAMIFANNI

### 抄 録

目的：本研究は、視覚障がい（VI）を持つ学生を通常学級へ包括することに関する報告である。非識字者をなくすために、ユネスコの持続可能な開発目標（SDG）No.4では、教育に関して「質の高い教育をみんなに」を基本として「多様性と公平」を強調している。学校においてサポートを実践する際、実施者によっては気づくことなく見落とされてしまう項目が存在する。rapid review による本研究では、視覚障がい児を含めた通常学級で発生する認識と学習文化を統合することを目的としている。

方法：本研究は、ERIC, Google Scholar, JSTOR, PubMed, ResearchGate, Semantic Scholar, Springer のデータベースを介して体系的な検索を実行し、2001年から2019年にかけて専門誌の中で発表された査読付き英語論文（学級内のVI児について論じている出版物を含む）を抽出した。選択過程全体で、レビューと主題分析に適していた75件の研究が見つかった。

結果：通常学級のVI児に対する適切な教育/学習の戦略として、教師と生徒の視点に関する3つの主要なテーマが特定された。

結論：包括的教育の環境では、教師とVI児は、適切な機関からの注目と介入を必要とする課題に直面する。さらなる研究のための推奨事項が提案された。

キーワード：多様性の受入れ、学習、学習者のサポート、視点、教育、視覚障がい