



RESEARCH PAPER

Investigating the Role of Executive Functioning in Appropriate Behavior Development of Visually Impaired School Students

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ABSTRACT

Executive function with appropriate behavior is significant for visually impaired students to adjust in an adaptive environment. This study intended to investigate the role of executive functioning in appropriate behaviors of visually impaired school students. The study was quantitative and descriptive. The sample of study included 80 teachers of visually impaired school students from different cities in Punjab. A convenient sampling technique was used to collect data through a self-developed structured questionnaire. The validity of the instrument was assured by the experts' opinion (N=02). Data were analyzed through descriptive statistics by using SPSS version 21. Frequencies were drawn from the data to reach the findings of the study. The findings of the study revealed that 57.5% of respondents reported that visually impaired students get into trouble starting and completing tasks. However, 51.2% of respondents responded that visually impaired students have self-control over themselves in response to unethical behaviors. The study recommended that particular training should be conducted for teachers to develop goal-oriented behaviors among visually impaired students. Moreover, Teachers should engage visually impaired students in such class activities that could bring effective behavioral change among them.

KEYWORDS Appropriate behavior, Executive Function, Students with Visual Impairment, Teacher Working Memory

Introduction

Visual impairment becomes a hurdle in learning various skills in life. An individual is considered to have visual impairment if they have a presenting visual acuity of less than 6/12, low vision of less than 6/18 but equitable to or better than 3/60, or a later loss of visual field of less than 20 degrees with the highest suitable correction in the eye that has the advantage (Larsen et al., 2019). The missing element of visual cues leads the visually impaired students towards missing appropriate behaviors that are much required to get achievements in numerous fields of life. Appropriate behavior is yet an eccentric subject with no abundant literature (Madrona et al., 2020).

Executive functioning is the basic cognitive processes like working memory, attentional control, inhibitory control, cognitive inhibition, and cognitive flexibility. Planning and self-determined intelligence, for example, reasoning and solving problems are examples of higher-order executive functions that call on the immediate use of numerous basic executive functions (Diamond, 2013). Related to aversive and classical conditioning, respectively, cognitive control and stimulus control describe opposing processes that struggle for control of a person's evoked actions or behaviors (Washburn, 2016).

The behaviors that are accepted in society are referred to as appropriate behaviors. Levitis et al.(2009) defined that "Behavior is the internally coordinated responses (actions or inactions) of whole living organisms (individuals or groups) to internal and/or external stimuli, excluding responses more readily understood as developmental changes". The

appropriate behavior of visually impaired students refers to how they act or interact with other people. However, Children and adolescents with visual impairments exhibit higher emotional issues, such as worry, fear, and/or sadness (Augestad, 2017).

Appropriate behaviors are exhibited through positive characteristics that are deemed acceptable by society. Various situations in different circumstances develop different behaviors (Katz, 2019). The ability to be sociable, adjust to new environments, draw attention from others, and participate in social conversation and other group activities are all indications of good social behavior. Furthermore, independent of the primary illness, individual differences in social development have also been connected to problematic behavior, with higher social skill development being associated with fewer behavioral issues (Hukkelberg et al., 2019).

In the context of developmental difficulties made worse by visual impairments and potential behavioral issues that may follow that seem to occur more frequently at special schools. Choosing and constructing a goal also requires executive functioning (Baggetta and Alexander, 2016).

The challenging but essential factor in education to manage pedagogical activities are the appropriate behaviors usages to achieve success in life (Giraldo and Mera, 2014).

The role of executive function in appropriate behavioral development among visually impaired students during their studies is significant for smooth teaching and learning processes. Executive functions include a combination of cognitive progressions required for the cognitive regulation of behavior including choosing and successfully monitoring behaviors. (Diamond, 2013). The executive function consists of crucial regulatory and control systems that are used to carry out the situation and goal-related activities of visually impaired students.

Literature Review

Executive functioning is referred to as higher-order mental processes that are crucial for multi-step planning of actions and goal monitoring. These processes can predict learning, academic performance, health, well-being, economic position, and social behaviors across the lifespan in a timely (Zelazo, 2020). Executive functions are referred to as an umbrella word for a wide range of theorized cognitive processes that serve connected purposes (Barbosa et al., 2019).

Executive function includes the capacity to begin problem-solving processes, reduce the impact of distracting stimuli or actions, choose relevant goals for actions, organize complex problem-solving processes, adapt problem-solving strategies flexibly, and continuously monitor one's course of action and assess their effectiveness. There is evidence that the proper implementation of a problem's solution occasionally necessitates a wider and more imaginative vision. (Braem and Egner, 2018). The core of executive function is working memory, which preserves the data for future problem-solving processes. Some recent studies have looked into specific executive function domains like attentional control or domains that are closely linked to executive function like self-regulatory learning among visually impaired persons. According to Tadic et al., (2010), preschool-aged children with congenital visual impairments had a lower ability to control their attention than sighted children did, and visually impaired students tended to employ rather general self-regulatory learning strategies that did not cater to the particular requirements of various school subjects (for example, language and mathematics; Argyropoulos et al., 2012). These results imply that those with visual impairments may have less developed executive function. Visual impairment might also have an impact on verbal communication. When compared to their sighted peers, visually impaired school-age children have lower pragmatic language skills (that is, using language appropriate to context) even when they have good and

possibly superior structural language skills, such as the use of grammar and vocabulary (Tadić et al., 2010). Additionally, a common executive function factor is more important for externalizing psychopathology than specific executive functions (Friedman et al., 2020), or both common factors and specific executive functions, like shifting-specific and response inhibition, are predictive of externalizing behaviors (Wang et al., 2017; Hatoum et al., 2018).

There is a relation between executive functioning and with appropriate behavior of the students. Alternative circuit configurations, distinct circuits as a whole, or different behaviors produced by the same circuit can all cause the same behavior (Katz, 2019). Visually impaired students experience difficulties in learning appropriate behaviors due to the missing elements of visual cues. This might be a result of the difficulties they have in interpreting nonverbal cues from others and visual clues (Ozkubat & Ozdemir, 2015). The role of the teacher is significant in this regard. Every learner has strengths, and it might be crucial for them to be able to recognize and utilize these strengths (Mercer, 2019). However, the behavior of the students is always dependent on the feedback of the teacher who works daily by delivering appropriate instruction to develop adequate executive functioning skills among students with visual impairment. Teachers must therefore react appropriately to students who are experiencing executive dysfunction for EF to develop in a healthy way. Teachers' instructions are hindered by the disruptive behavior of the students and also affect the learning of the students. Disruptive behavior is generally defined as inappropriate classroom behavior by students that hinders instruction from both teachers and students (Gómez et al., 2018). The atmosphere in the classroom is impacted. One of the main issues that teachers and administrators express concern about is disruptive behavior in the classroom. It is thought that disruptive behavior or disciplinary issues in the classroom hurt students' ability to learn and result in worse academic performance (Gallegos et al., 2020). Executive functioning plays a significant role in developing appropriate behavior for students with visual impairment. Previous studies highlighted links between executive function, communicative competence, and behavioral issues, as well as the role of executive function in behavioral issues among visually impaired children in regular and special schools. Executive functions are a set of cognitive processes required for the cognitive regulation of behavior, including choosing and successfully monitoring behaviors that enable the achievement of predetermined goals (Diamond, 2013).

Material and Methods

Research Design

This was a quantitative study in which a descriptive research design was adopted.

The Population

The populations of the study were special education teachers in the visual impairment field at the school level.

Sample

The Sample of the study included special education teachers in the visual impairment field from the school level (N = 80) including males (N= 53), and females (N= 57). The age range was 25 years to 40 years. A purposive sampling technique was used to collect data for this research. The purpose of using this sampling technique in this study was the nature of the research topic which requires the most relevant data from the particular field's specialists.

The Instrument

A self-developed structured questionnaire was used as an instrument for data collection. The validity of the instrument was confirmed through the expert's opinion (N=02). The reliability of the instrument was confirmed through Cronbach alpha which was 0.88. In the instrument, the first part consists of demographic information such as age, qualification, gender, and experience with the district. The second part consisted of 26 items, and the response options were 3 i.e, Yes, To some extent, No.

Data Collection Procedure

Data was collected after getting permission to collect data was obtained from the respondents as a part of ethical considerations and they were informed about the topic of the research as well. The quantitative data from the respondents were analyzed using Statistical Package for Social Sciences (SPSS) version 21 with descriptive statistics. Data were converted to numeric results through quantitative analysis into percentages and were presented in tabulated form.

Research Procedure

After the selection of the problem for this research, the researchers reviewed the literature and set out the objectives, significance, and questions of the research. The researchers developed a self-developed close-ended questionnaire. The total number of respondents for this research was (N=80). The sample was selected through a purposive sampling technique. The researchers were assured that the finding from this research will be used for academic purposes only. Respondents were also urged to present information in good faith about themselves.

Results and Discussion

Table 1
Frequency Distribution of Respondents' Gender

Gender	Frequency	Percent
Male	30	37.5%
Female	50	62.5%
Total	80	100%

This table indicates that 37.5% of respondents were males and 62.5% of respondents were females. Therefore, the majority of the respondents 62.5% in the study were females.

Table 2
Frequency Distribution of Respondents' Age

Age	Frequency	Percent
25-30	14	17.5%
31-35	21	26.3%
36-40	27	33.8%
41 and above	17	21.3%
Total	80	100%

This table depicts that 17.5% of respondents were between 25-30 years, 26.3% of respondents were between 31-35 years, 33.8% were between 36-40 years and 21.3% of respondents were 41 and above years old. Therefore, the majority of the respondents 33.8% were between 36-40 years old.

Table 3
Frequency Distribution of Respondents' Designation

Designation	Frequency	Percent
JSET	32	40%
SSET	29	36.3%
Other	18	22.5%
Total	80	100%

This table shows that 40% of respondents were JSET, 36.3% were SSET, and 22.5% were from other designations. Therefore, the majority of the respondents 40% in the study were JSET.

Table 4
Frequency Distribution of Respondents' Experience

Experience	Frequency	Percent
Below 5 years	21	26.3%
Above 5 years	59	73.8%
Total	80	100.0%

This table indicates that the experience of 26.3% of respondents was below 5 years and the experience of 73.8% of respondents was above 5 years. Therefore, the experience of the majority of the respondents 73.8% in the study was above 5 years.

Table 5
Frequency Distribution of Respondents' Qualification

Qualification	Frequency	Percent
B.Ed	8	10.0%
BS/M.A/M.ed	54	67.5%
MS/ M.Phill	18	22.5%
Total	80	100.0%

This table indicates that 10% of respondents were B. Ed, 67.5% of respondents were BS/MA/M. Ed and 22.5% of respondents were MS/M. Phill. Therefore, the majority of the respondents 67.5% in the study were BS/MA/M.Ed.

Table 6
Visually Impaired Students Getting Trouble Starting and Completing Tasks

Responses	Frequency	Percent
No	4	5.0%
to some extent	30	37.5%
Yes	46	57.5%
Total	80	100.0%

This table contains that 5% (N=4) of respondents said no to the above statement, and 37.5% (N=30) of respondents said to some extent however, 57.5% (N=46) of respondents said yes to the above statement. Therefore, the maximum number of respondents 57.5% said yes about visually impaired students get trouble starting and/or completing tasks.

Table 7
Visually Impaired Students Experience Difficulty in Prioritizing Tasks.

Responses	Frequency	Percent
No	8	10.0%
to some extent	36	45.0%
Yes	36	45.0%
Total	80	100.0%

This table displays that 10% (N=8) of respondents said no to the above statement and 45% (N=36) of respondents said to some extent however, 45% (N=36) of respondents said yes to the above statement. Therefore, the maximum number of respondents with a ratio of 45% responded to some extent and yes about visually impaired students experience difficulty in prioritizing tasks.

Table 8
Visually Impaired Students Find Difficulties in Remembering What They Read.

Responses	Frequency	Percent
No	29	36.3%
To some extent	40	50.0%
Yes	11	13.8%
Total	80	100.0%

This table indicates that 36.3% (N=29) of respondents said no to the above statement and 50% (N=40) of respondents said to some extent however, 13.8% (N=11) of respondents said yes to the above statement. Therefore, the maximum number of respondents 50% responded to some extent about visually impaired students finding difficulties in remembering what they read.

Table 9
Routine Change Affect the Behavior of The Visually Impaired Students

Responses	Frequency	Percent
No	5	6.3%
To some extent	24	30.0%
Yes	51	63.7%
Total	80	100.0%

This table indicates that 6.3% (N=5) of respondents said no to the above statement and 30% (N=24) of respondents said to some extent however, 63.7% (N=51) of respondents said yes to the above statement. Therefore, a maximum number of respondents 63.7% responded yes that routine change affects the behavior of visually impaired students.

Table 10
Visually Impaired Students Face Trouble in Shifting Their Focus from One Task to Another.

Responses	Frequency	Percent
No	14	17.5%
To some extent	34	42.5%
Yes	32	40.0%
Total	80	100.0%

This table indicates that 17.5% (N=14) of respondents said no to the above statement and 42.5% (N=34) of respondents said to some extent however, 40% (N=32) of respondents said yes to the above statement. Therefore, the maximum number of respondents 42.5% responded to some extent that visually impaired students face trouble in shifting their focus from one task to another.

Table 11
Visually Impaired Students Perform Multiple Tasks Simultaneously after Teachers Guide Them.

Responses	Frequency	Percent
No	6	7.5%
To some extent	29	36.3%
Yes	45	56.3%
Total	80	100.0%

This table depicts that 7.5% (N=6) of respondents said no to the above statement and 36.3% (N=29) of respondents said to some extent however, 56.3% (N=45) of respondents said yes to the above statement. Therefore, the maximum number of respondents 56.3% responded yes that visually impaired students perform multiple tasks simultaneously if teachers guide them.

Table 12
Visually Impaired Students Get Overly Emotional and Fixate on Things.

Responses	Frequency	Percent
No	10	12.5%
To some extent	36	45.0%
Yes	34	42.5%
Total	80	100.0%

This table indicates that 12.5% (N=10) of respondents said no to the above statement and 45% (N=36) of respondents said to some extent however, 42.5% (N=34) of respondents said yes to the above statement. Therefore, a maximum number of respondents 45% responded to some extent that visually impaired students get overly emotional and fixate on things.

Table 13
Visually Impaired Students Get Trouble Organizing Their Thoughts and Learnt Materials.

Responses	Frequency	Percent
No	20	25.0%
To some extent	45	56.3%
Yes	15	18.8%
Total	80	100.0%

This table indicates that 25% (N=20) of respondents said no to the above statement and 56.3% (N=45) of respondents said to some extent however, 18.8% (N=15) of respondents said yes to the above statement. Therefore, the maximum number of respondents 56.3% responded to some extent that visually impaired students get trouble organizing their thoughts and learning materials.

Table 14
Visually Impaired Students Face Trouble in Keeping Track of Their Belongings.

Responses	Frequency	Percent
No	18	22.5%
To some extent	39	48.8%
Yes	23	28.7%
Total	80	100.0%

This table indicates that 22.5% (N=18) of respondents said no to the above statement and 48.8% (N=39) of respondents said to some extent however, 28.7% (N=23) of respondents said yes to the above statement. Therefore, the maximum number of respondents 48.8% responded to some extent that visually impaired students face trouble in keeping track of their belongings.

Table 15
Visually Impaired Students Have Self-Control upon Themselves in Response to Unethical Behaviors.

Responses	Frequency	Percent
No	5	6.3%
To some extent	34	42.5%
Yes	41	51.2%
Total	80	100.0%

This table indicates that 6.3% (N=5) of respondents said no to the above statement and 42.5% (N=34) of respondents said to some extent however, 51.2% (N=41) of respondents said yes to the above statement. Therefore, the maximum number of respondents 51.2% responded yes that visually impaired student have self-control upon themselves in response to unethical behaviors.

Table 16
Visually Impaired Students Depict Rigid Behaviors in Their Relationships with Others.

Responses	Frequency	Percent
No	15	18.8%
To some extent	46	57.5%
Yes	19	23.8%
Total	80	100.0%

This table indicates that 18.8% (N=15) of respondents said no to the above statement and 57.5% (N=46) of respondents said to some extent however, 23.8% (N=19) of respondents said yes to the above statement. Therefore, the maximum number of respondents 57.5% responded to some extent that visually impaired students depict rigid behaviors in their relationships with others.

Table 17
Visually Impaired Students Maintain Focus and Organize the Previous Learnt Material According to the Steps of Long-Division.

Responses	Frequency	Percent
No	5	6.3%
To some extent	28	35.0%
Yes	47	58.8%
Total	80	100.0%

This table indicates that 6.3% (N=5) of respondents said no to the above statement and 35% (N=28) of respondents said to some extent however, 58.8% (N=47) of respondents said yes to the above statement. Therefore, the maximum number of respondents 58.8% responded yes about visually impaired students maintaining focus and organizing the previously learned material according to the steps of long division.

Table 18
Visually Impaired Students Feel Comfortable Taking Notes in Class.

Responses	Frequency	Percent	Cumulative Percent
No	12	15.0%	15.0
To some extent	20	25.0%	40.0
Yes	48	60.0%	100.0
Total	80	100.0%	

This table identifies that 15% (N=12) of respondents said no to the above statement and 25% (N=20) of respondents said it to some extent however, 60% (N=48) of respondents said yes to the above statement. Therefore, the maximum number of respondents 60% responded yes that visually impaired students feel comfortable taking notes in class.

Table 19
Visually Impaired Students Remember a Convincing Argument While Another Person Finishes Talking.

Responses	Frequency	Percent	Cumulative Percent
No	5	6.3%	6.3
To some extent	24	30.0%	36.3
Yes	51	63.7%	100.0
Total	80	100.0	%

This table indicates that 6.3% (N=5) of respondents said no to the above statement and 30% (N=24) of respondents said to some extent however, 63.7% (N=51) of respondents said yes to the above statement. Therefore, a maximum number of respondents 63.7% responded yes that visually impaired students remember a convincing argument while another person finishes talking.

Table 20
Role of Teachers in Developing Inflexible Behavior of Visually Impaired Students at the School Level.

Responses	Frequency	Percent	Cumulative Percent
No	8	10.0%	10.0
To some extent	31	38.8%	48.8
Yes	41	51.2%	100.0
Total	80	100.0%	

This table indicates that 10% (N=8) of respondents said no to the above statement and 38.8% (N=31) of respondents said to some extent however, 51.2% (N=41) of respondents said yes to the above statement. Therefore, the maximum number of respondents 51.2% responded yes about the role of the teacher in developing flexible behavior of visually impaired students at the school level.

Table 21
Disability Become One of The Reasons for Inappropriate Behavior for Visually Impaired Students.

Responses	Frequency	Percent	Cumulative Percent
No	10	12.5%	12.5
To some extent	28	35.0%	47.5
Yes	42	52.5%	100.0
Total	80	100.0%	

This table indicates that 12.5% (N=10) of respondents said no to the above statement and 35% (N=28) of respondents said to some extent however, 52.5% (N=42) of respondents said yes to the above statement. Therefore, the maximum number of respondents 52.5% responded yes about disability becoming one of the reasons for inappropriate behavior for visually impaired students.

Table 22
Visually Impaired Students Show Inappropriate Behavior Towards Understanding Different or Difficult Points of View.

Responses	Frequency	Percent
No	13	16.3%
To some extent	42	52.5%
Yes	25	31.3%
Total	80	100.0%

This table indicates that 16.3% (N=13) of respondents said no to the above statement and 52.5% (N=42) of respondents said to some extent however, 31.3% (N=25) of respondents said yes to the above statement. Therefore, the maximum number of respondents 52.5% responded that visually impaired students show inappropriate behavior toward understanding different or difficult points of view to some extent.

Table 23
Visually Impaired Students can Manage Their Behavior to Achieve Their Life Goals.

Responses	Frequency	Percent
No	4	5.0%
To some extent	32	40.0%
Yes	44	55.0%

Total	80	100.0%
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This table highlights that 5% (N=4) of respondents said no to the above statement and 40% (N=32) of respondents said it to some extent however, 55% (N=44) of respondents said yes to the above statement. Therefore, the maximum number of respondents 55% responded yes about visually impaired students managing their behavior to achieve their life goals.

Table 24
Visually Impaired Students Avoid Doing Negative Actions.

Responses	Frequency	Percent
No	13	16.3%
To some extent	37	46.3%
Yes	30	37.5%
Total	80	100.0%

This table represents that 16.3% (N=13) of respondents said no to the above statement and 46.3% (N=37) of respondents said to some extent however, 37.5% (N=30) of respondents said yes to the above statement. Therefore, the maximum number of respondents 46.3% responded that visually impaired students avoid doing negative actions to some extent.

Table 25
Visually Impaired Students can Focus Their Attention in Their Class.

Responses	Frequency	Percent
No	2	2.5%
To some extent	22	27.5%
Yes	56	70.0%
Total	80	100.0%

This table highlights that 2.5% (N=2) of respondents said no to the above statement and 27.5% (N=22) of respondents said to some extent however, 70% (N=56) of respondents said yes to the above statement. Therefore, the maximum number of respondents 70% responded yes that visually impaired students focus their attention in their class.

Table 26
Visually Impaired Students Remember Instructions Properly Delivered by Their Teachers

Responses	Frequency	Percent
No	2	2.5%
To some extent	21	26.3%
Yes	57	71.3%
Total	80	100.0%

This table indicates that 2.5% (N=2) of respondents said no to the above statement and 26.3% (N=21) of respondents said to some extent however, 71.3% (N=57) of respondents said yes to the above statement. Therefore, the maximum number of respondents 71.3% responded yes about visually impaired students remembering instructions properly delivered by their teachers.

Table 27
Visually Impaired Students Show Inappropriate Behavior on Positive Motivation in Schools.

Responses	Frequency	Percent
No	33	41.3%
To some extent	27	33.8%

Yes	20	25.0%
Total	80	100.0%

This table contains that 41.3% (N=33) of respondents said no to the above statement and 33.8% (N=27) of respondents said to some extent however, 25% (N=20) of respondents said yes to the above statement. Therefore, the maximum number of respondents 41.3% responded no about visually impaired students showing inappropriate behavior on positive motivation in schools.

Table 28
Behaviors Being Shaped-Up in The Schools by The Teachers

Responses	Frequency	Percent
No	1	1.3%
To some extent	15	18.8%
Yes	64	80.0%
Total	80	100.0%

This table shows that 1.3% (N=1) of respondents said no to the above statement and 18.8% (N=15) of respondents said to some extent however, 80% (N=64) of respondents said yes to the above statement. Therefore, the maximum number of respondents 80% responded yes about behaviors being shaped in the schools by the teachers.

Table 29
Teachers Provide Opportunities for Visually Impaired Students to Think About Things in a New or Different Way for Developing Appropriate Behavior.

Responses	Frequency	Percent	Cumulative Percent
Yes	2	2.5%	2.5
To some extent	15	18.8%	21.3
No	63	78.8%	100.0
Total	80	100.0%	

The above-mentioned table indicates that 2.5% (N=2) of respondents said no to the above statement and 18.8% (N=15) of respondents said to some extent however, 78.8% (N=63) of respondents said yes to the above statement. Therefore, the maximum number of respondents 78.8% responded no that teachers provide opportunities for visually impaired students to think about things in a new or different way to develop appropriate behavior.

Table 30
School Psychologists Work with Visually Impaired Students in Their Behavior Management

Responses	Frequency	Percent	Cumulative Percent
No	8	10.0%	10.0
To some extent	15	18.8%	28.7
Yes	57	71.3%	100.0
Total	80	100.0%	

This table depicts that 10% (N=8) of respondents said no to the above statement and 18.8% (N=15) of respondents said to some extent however, 71.3% (N=57) of respondents said yes to the above statement. Therefore, the maximum number of respondents 71.3% responded yes to school psychologists working with visually impaired students in their behavior management.

Findings

The findings of the study have been given below:

1. A maximum of the respondents 62.5% were females.
2. The majority of the respondents 33.8% were between 36-40 years old.

Perception of Teachers

1. A maximum number of respondents 57.5% said yes about visually impaired students get trouble starting and/or completing tasks.
2. The maximum number of respondents 45% responded “yes” about visually impaired students experiencing difficulty in prioritizing tasks.
3. A maximum number of respondents 50% responded “to some extent” about visually impaired students finding difficulties in remembering what they read.
4. A maximum number of respondents 51.2% responded yes that visually impaired student have self-control upon themselves in response to unethical behaviors.
5. A maximum number of respondents 57.5% responded to some extent that visually impaired students depict rigid behaviors in their relationships with others.
6. A maximum number of respondents 58.8% responded yes about visually impaired students maintaining focus and organizing the previously learned material according to the steps of long division.
7. A maximum number of respondents 60% responded “yes” that visually impaired students feel comfortable taking notes in class.
8. A maximum number of respondents 63.7% responded yes that visually impaired students remember a convincing argument while another person finishes talking.
9. A maximum number of respondents 52.5% responded “to some extent” that visually impaired students show inappropriate behavior toward understanding different or difficult points of view.
10. A maximum number of respondents 55% responded “yes” about visually impaired students managing their behavior to achieve their life goals.
11. A maximum number of respondents 46.3% responded “to some extent “ that visually impaired students avoid doing negative actions.
12. A maximum number of respondents 70% responded “yes” that visually impaired students focus their attention in their class.
13. A maximum number of respondents 71.3% responded “yes” about visually impaired students remembering instructions properly delivered by their teachers.
14. A maximum number of respondents 41.3% responded “no” about visually impaired students showing inappropriate behavior on positive motivation in schools.

Challenges in supporting executive functioning

1. A maximum number of respondents 63.7% responded yes that routine change affects the behavior of visually impaired students.
2. A maximum number of respondents 42.5% responded “to some extent” that visually impaired students face trouble in shifting their focus from one task to another.
3. A maximum number of respondents 45% responded “to some extent” that visually impaired students get overly emotional and fixate on things.
4. A maximum number of respondents 56.3% responded “to some extent” that visually impaired students get trouble organizing their thoughts and learning materials.
5. A maximum number of respondents 48.8% responded “to some extent” that visually impaired students face trouble in keeping track of their belongings.
6. A maximum number of respondents 52.5% responded yes about disability becoming a challenge for developing inappropriate behavior for visually impaired students.

Efforts delineated by the Teachers

1. A maximum number of respondents 51.2% responded yes about there is the role of the teacher in developing inflexible behavior of visually impaired students at the school level.
2. A maximum number of respondents 80% responded “yes” about behaviors being shaped in the schools by the teachers.
3. A maximum number of respondents 78.8% responded “no” that teachers provide opportunities for visually impaired students to think about things in a new or different way to develop appropriate behavior.
4. A maximum number of respondents 71.3% responded “yes” that school psychologists working with visually impaired students in their behavior management.

Discussion

Executive functions of inhibitory control, working memory, and cognitive flexibility enable humans to think before acting, resist temptations or impulsive reactions, stay focused, reason, problem-solving, adjust to changing demands or priorities, and see things from new and different perspectives (Diamond & Ling, 2016). The perception of teachers about the role of executive functioning for the appropriate behavior of visually impaired students i.e they experience difficulty in prioritizing tasks and also get trouble in starting and/or completing tasks. The teachers perceive students with visual impairment find difficulties in remembering what they read and organizing their thoughts and learning materials. Challenges in maintaining learning behaviors include struggles with being on task, completing all required work, and listening to and following directions (Diamond & Ling, 2016). Many students with visual impairment perform multiple tasks simultaneously if teachers guide them and some of them face trouble in shifting their focus from one task to another. Students with visual impairment experience difficulty in keeping track of their belongings however, they feel comfortable taking notes in class. They remember a convincing argument while another person finishes talking and have self-control upon themselves in response to unethical behaviors. However, some depict rigid behaviors in their relationship with others. EFDs are associated with weaker academic skills, lack of engagement, and lack of self-regulation of behavior (Sulik & Obradović, 2018).

Many reasons are responsible for developing executive functioning for visually impaired students. Teachers play an important role in developing the flexible behavior of visually impaired students at the school level. Social and cultural events including The environment express the role of teacher (Makovec, 2018).

Disability becomes one of the reasons for inappropriate behavior for visually impaired students and they show inappropriate behavior toward understanding different or difficult points of view. Moreover, Unconscious habits are the result of repeated distinctive movement by visually impaired students and is known as Blindism behavior (Anwar et al., 2022).

Teachers are involved in shaping the behaviors when visually impaired students get overly emotional and fixate on things. According to Spiess et al., (2015), teachers struggled to decipher differences in the executive functions of students to properly tailor instruction or remediation.

Conclusion

The role of executive function in appropriate behavioral development among visually impaired students during their studies is significant for smooth teaching & learning processes. Additionally, executive functions are a set of cognitive processes required for the

cognitive regulation of behavior, including choosing and successfully monitoring behaviors that enable the achievement of predetermined goals. The executive function consists of crucial regulatory and control systems that are used to carry out the situation and goal-related activities of visually impaired students. Many reasons are responsible for developing executive functioning for visually impaired students such as disability, inflexible behavior of teachers, routine change, etc. Executive functioning is essential for developing the appropriate behavior of visually impaired students and teachers play an important role in shaping the behavior of visually impaired students by engaging them in hand on activities.

Recommendations

The recommendations of the study are given below:

1. Particular training should be conducted for teachers to develop goal-oriented behaviors among visually impaired students.
2. Teachers should engage visually impaired students in multiple activities to develop their executive functioning.
3. School psychologists must be trained to work with visually impaired students in their behavior management.
4. Parents should collaborate with the teachers in shaping-up appropriate behaviors among their visually impaired children at home.
5. Future research should seek the relationship between working memory and flexible thinking to develop appropriate social behaviors among visually impaired students.

References

- Anwar, Mohammad, Prakosha, Donni, Supriyadi, Nastiti, Intan (2022). ICLIQE '21: *Proceedings of the 5th International Conference on Learning Innovation and Quality Education*, 65. <https://doi.org/10.1145/3516875.3516953>
- Argyropoulos, V., Sideridis, G.D., Botsas, G. and Padelidu, S. (2012). Assessing Self-Regulation in Individuals with Visual Impairments: Generality versus Specificity in Self-Regulatory Functioning. *Assessment for Effective Intervention*, 37, 171-182. <https://doi.org/10.1177/1534508411406899>
- Augestad L. B. (2017). Mental health among children and young adults with visual impairments: A systematic review. *Journal of Visual Impairment & Blindness*, 111(5), 411-425.
- Baggetta, P., Alexander, P. A. (2016). Conceptualization and operationalization of executive function. *Mind Brain Educ.* 10, 10-33. Doi: 10.1111/mbe.12100
- Barbosa T, Rodrigues CC, Mello CB, Silva M, Bueno OFA (2019). Executive functions in children with dyslexia. *Arq Neuropsiquiatr* 77(4):254-259. <https://doi.org/10.1590/0004-282x20190033>
- Braem, S., Egner, T. (2018). Getting a grip on cognitive flexibility. *Curr. Dir. Psychol.* 27 (6), 470-476. doi: 10.1177/0963721418787475
- Diamond, A., Ling, D. S. (2016). Conclusions about interventions, programs, and approaches for improving executive functions that appear justified and those that, despite much hype, do not. *Developmental Cognitive Neuroscience*, 18, 34- 48.
- Diamond, Adele (2013). "Executive functions". *Annual Review of Psychology*. 64: 135-168. Doi:10.1146/annurev-psych-113011-143750
- Friedman N. P., Hatoum A. S., Gustavson D. E., Corley R. P., Hewitt J. K., Young S. E. (2020). Executive functions and impulsivity are genetically distinct and independently predict psychopathology: results from two adult twin studies. *Clin. Psychol. Sci.* 8, 519-538. Doi: 10.1177/2167702619898814.
- Gallegos, G. Gómez-López, A. Baena-Extremera, M. Martínez-Molina, M. (2020). Interaction effects of disruptive behavior and motivation profiles with teacher competence and school satisfaction in secondary school physical education. *International Journal of Environmental Research and Public Health*, 17(1), 114. <https://doi.org/10.3390/ijerph17010114>
- Giraldo, L., Mera, R. (2014). Clima social escolar: percepción del estudiante. *Colombia Méd.* 31, 23-27.
- Gómez Mármol, A., Sánchez Alcaraz Martínez, B. J., Valero Valenzuela, A., & De la Cruz Sánchez, E. (2018). Perceived violence, sociomoral attitudes and behaviors in school contexts. *Journal of Human Sport and Exercise*, 13(1). <http://dx.doi.org/10.17810/2015/47>
- Hatoum A. S., Rhee S. H., Corley R. P., Hewitt J. K., Friedman N. P. (2018). Do executive functions explain the covariance between internalizing and externalizing behaviors? *Dev. Psychopathol.* 30, 1371-1387. Doi: 10.1017/S0954579417001602.

- Hukkelberg S., Keles S., Ogden T., Hammerstrom K. (2019). The relation between behavioral problems and social competence: a correlational meta-analysis. *BMC Psychiatry* 19:354. Doi: 10.1186/s12888-019-2343-9, PMID:
- Katz P.S. (2019). Evolution of central pattern generators and rhythmic behaviors *Philos. Trans. R. Soc. Lond. B Biol. Sci.*, 371 (2016), 20150057
- Larsen, P. P., Thiele, S., Krohne, T. U., Ziemssen, F., Krummenauer, F., Holz, F. G., Finger, R. P., & OVIS-Study Group (2019). Visual impairment and blindness in institutionalized elderly in Germany. *Graefe's archive for clinical and experimental ophthalmology = Albrecht von Graefes Archiv fur klinische und experimentelle Ophthalmologie*, 257(2), 363–370. [https://doi.org/ 10.1007/s00417-018-4196-1](https://doi.org/10.1007/s00417-018-4196-1).
- Levitis D. A., Lidicker W. Z., Jr., Freund G. (2009). Behavioral biologists do not agree on what constitutes behavior. *Animal Behaviour*. 78:103–110.
- Madrona P. G. Gómez J. L. Jurado M. A. A. GutiérrezMarín E.C. (2020). Appropriate Self-Perceived Behaviors in Primary Education Pupils During Sports Games. *Front. Psychol.*, Volume 11 - 2020 | <https://doi.org/10.3389/fpsyg.2020.01528>
- Makovec, D. (2018). The teacher's role and professional development. *International Journal of Cognitive Research in Science Engineering and Education* 6(2):33-45. DOI:10.5937/ijcrsee1802033M
- Mercer, S. (2019). "Language learner engagement: Setting the scene," in *Second Handbook of English Language Teaching*. ed. X. Gao (Basel, Switzerland: Springer), 1–19.
- Spiess, M. A., Meier, B., & Roberts, C. M. (2015). Prospective memory, executive functions, and metacognition are already differentiated in young elementary school children. *Swiss Journal of Psychology / Schweizerische Zeitschrift Für Psychologie*, 74(4), 229-241.
- Sulik, M. J., & Obradović, J. (2018). Teachers' rankings of children's executive functions: Validating a methodology for school-based data collection. *Journal of Experimental Child Psychology*, 173, 136-154
- Tadić, V., Pring, L., Dale, N. (2010). Are language and social communication intact in children with congenital visual impairment at school age? *J Child Psychol Psychiatry*, 51 (6), 696-705
- Wang F. L., Chassin L., Lee M., Haller M., King K. (2017). Roles of response inhibition and gene-environment interplay in pathways to Adolescents' externalizing problems. *J. Res. Adolesc.* 27, 258–277. Doi: 10.1111/jora.12270.
- Washburn, DA (2016). "The Stroop effect at 80: The competition between stimulus control and cognitive control". *Journal of the Experimental Analysis of Behavior*. 105 (1): 3–13. Doi:10.1002/jeab.194
- Zelazo P. D. (2020). Executive Function and Psychopathology: A Neurodevelopmental Perspective. *Annual Review of Clinical Psychology* 16(1). DOI:10.1146/annurev-clinpsy-072319-024242