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Learners with Dyspraxia: Teachers' Perceptions at Elementary Level

Tahira Kalsoom[*], Abdul Haseeb Mujahid[**] and Fakhra Aziz[***]

Abstract

The area of dyspraxia received a little attention as compared to other learning disabilities. Therefore, the main aim of this study was to explore the level of awareness and understanding of teachers regarding the indications of dyspraxia, to assess teachers' perceptions and ability to identify and manage the students with dyspraxia in their classroom. This study makes a contribution in revealing the awareness of teachers' regarding the symptoms of dyspraxia and impact of dyspraxia on social, emotional and physical health of a child. A descriptive research design was adopted to study the perceptions of elementary school teachers regarding dyspraxia at secondary level that attempted to determine and report things the way they were. Data was collected through questionnaire. The results showed that teachers had enough knowledge and awareness about the impact of dyspraxia on the social, physical and emotional health of the child, and believed they had the ability to identify and manage the students with dyspraxia in their classroom.

Keywords: Dyspraxia, learning disability, teachers' perception, elementary

[*] Assistant Professor, Research and Evaluation Department, Lahore College for Women University. Email: dr.tahirakhussain@gmail.com
[**] Director, Air Foundation School Jauharabad. Email: haseab@gmail.com
[***] Assistant Professor, Research and Evaluation Department, Lahore College for Women University. Email: fakhra.aziz@lcwu.edu.pk

Introduction

Learning impairment is the learning problems concerning specific group of the learners. These problems generally are related to reading, writing, spelling and mathematics (Abadzi, & Martelli, 2014). Learning impairment means incapability of hearing and seeing adequately in teaching and learning process. It also affects the linking of information. Learning difficulties can affect persons' daily routine life like in institute or at job, friendships as well as family life. It is noted by Sharma, (2014) that both learning disabilities and handicapped conditions should not be precisely associated with each other, though it is likely to happen that learning disabilities occurs with other handicapped conditions at the same time. According to Adeniyi, and Lawal (2012) Learning disability contains the groups of diverse disorders. These groups of disorders include problems related to listening, speaking, reading, writing mathematical and reasoning capabilities. Learning disorders are present in individuals inherently. It can occur at any stage of life. With other handicapped conditions such as mental retardation, learning disabilities can occur.

Dyspraxia is however very common now-a-days, but most of the people never heard about this term especially here in Pakistan. Therefore, this study is an investigation to find out the level of teachers' awareness regarding dyspraxia, their symptoms and impact on social, emotional and physical health of a child.

Aboras, et al, (2012) describe this learning difficulty as: Dilemmas associated to thinking, knowledge and dialect are encountered in this disability. The immaturity in the organization of movement is known as dyspraxia. Brain of dyspraxia patients find troublesome in transferring the information to different parts of the body. As a result, messages are not properly transmitted to the parts of the body. Dyspraxia is derived from two Greek words "dys" which means "faulty/Poor" and "Praxis" which means "doing/use of the body". It is best described as a motor learning disability. It is basically lack of planning capability. For dyspraxia patients to carry out sensory and motor tasks is difficult (Talukdar, 2012). Developmental dyspraxia is a neurological disorder, so it happens in the brain where we cannot see it. It is a motor-learning difficulty which means this disability is present from birth. In this disability a significant disturbance occurs to the things that a person tries to do. Dyspraxia patients' will not be able to understand messages properly and they are unable to relate messages to suitable actions. To learn and remember physical activities are difficult for them. Dyspraxia patients face difficulty in planning movements for the achievement of predetermined idea or purpose. Actually dyspraxia patients cannot make their bodies do what they it to do quickly enough (Brookes, 2005).

Dyspraxia is a lifelong condition. International organizations including World Health Organization formally recognized this term. Developmental coordination disorder basically describes those people who have to face coordination difficulties. For dyspraxia patients, it is hard for them to listen and remember the instructions. Language and speech development of children is also affected by dyspraxia. Dyspraxia is a difficulty in the fine motor coordination and mouth manipulation. It basically requires fine motor coordination which, as a result, makes child language more complicated and complex with the passage of time. As a result, dyspraxia has an impact on academic, social and emotional development (Kranowitz & Aquilla, 2012). Developmental coordination disorder, motor planning and learning difficulty and paraxial of speech are the other names of dyspraxia. Different therapies and strategies such as occupational therapy; speech and physical therapy can help dyspraxia patients. Dyspraxia patients can cope up in the areas of their weakness by the help of these therapies and strategies. According to Snowling (2013), problem in the capability to implement such movements that are skilled and purposeful and to do gestures with efficiency is known as dyspraxia. The term paraxial is used when this ability is lost completely. Due to dyspraxia, following skills can be affected; performing daily life activities, planning and organizing of motor and fine movements and language and speech related skills. As a result of loss or delay in the normal development of neurons dyspraxia may take place. Dyspraxia can also occur as a result of injury of head or stroke.

Due to dilemma in the normal development of neurons, for dyspraxia the term developmental coordination disorder is used. Whenever in popular English the word dyspraxia is used, it generally means this condition (Henderson, April 2015). Technically, it is the disorder of these three processes in the brain:

1. Ideation- forming the idea of movement for achieving the planned purpose.
2. Motor Planning- planning of the action needed for achievement of the idea.
3. Execution- carrying out the movement that is planned. (Geoff Brookes, 2005).

Dyspraxia affects someone's capability of performing different tasks. Dyspraxia is basically a neurological syndrome. It also affects the person's planning and processing of motor tasks. Dyspraxia is found both in children and adults. An individual having dyspraxia have to face a lot of difficulties like in organization, management, judgment, movement, memorization, processing and with other intellectual skills. A person's immune and nervous system also get affected by dyspraxia (Nordqvist, 2016).

Furthermore, a child with dyspraxia finds it difficult to do variety of everyday bodily tasks. These tasks can be speaking plainly, swimming, jumping, and holding a writing instrument such as pencil or pen. Children with dyspraxia can have mild or rigid symptoms. To help the dyspraxia child in home or in school there are lots of ways that have been introduced (Ahmad 2015).

Albornoand Gaad (2014) defined developmental dyspraxia as the deficiency in the capacity of the individual in performing and planning of motor and sensory tasks. They describe dyspraxia as "out of sync" individuals with the environment. Symptoms of dyspraxia differs in every individual and may contains problems in coordination, awkwardness, problems with sentiments, revelation problems, poor balance, problems with behavior, reading problems, problems in writing, speaking problems, understanding problems, low societal proficiency, indigent attitude, limited remembrance. Dyspraxia patients may act childishly and can have moderate or more than moderate brilliance.

Statement of the Problem

This study therefore explored the teacher's perceptions regarding dyspraxia at Elementary level. Learning disability includes several such areas in which person have to face difficulty in learning usually caused by unknown factor or factors. Because of stereotyping and misconception of people regarding being disabled therefore, it is more accurate to describe children with learning disability as "Learning Difference". Disability of intelligence is commonly referred as a learning disability.

Objectives of the Study

The study aims to:

i. Explore the level of awareness and understanding of teachers regarding dyspraxia.
ii. Investigate teachers' perceptions of their ability in identifying the students with dyspraxia in their classroom.
iii. Determine the teachers' perceptions regarding managing strategies for students with dyspraxia in the classroom.

Research Questions

i. What is the level of awareness and understanding of teachers dyspraxia?
ii. What are the perceptions of teachers about identification of the students with dyspraxia in the classroom?
iii. What are the teachers' perceptions regarding managing students with dyspraxia in the classroom?

Research Method and Procedures

Research design simply means the 'Blueprint' or chosen framework for the study (Flynn & McDermott, 2016, p. 84). Design of research is a strategy of deciding through what, where and when data should be collected and analyzed. It is a comprehensive procedure to respond the questions of research study and verification of the assumptions of research (Sharma, 2014). According to review of the literature and aims of the study, a descriptive research design was used. This research design was chosen because descriptive research design attains the existing information of the phenomena to define 'what exists' with respect to variables or situational conditions (James, 1997). Descriptive research designs combine qualitative and quantitative methods. Quantitative descriptive research design uses numbers or anything measurable to describe the phenomena. In this research study, the ordinal data and nominal data were acquired from the questionnaire responses. In order to investigate the teachers' perceptions regarding dyspraxia quantitative analysis was used. In quantitative research, to extract this type of information a survey questionnaire was used because it describes the variables status.

The proposed study focused on exploring the awareness of teachers' regarding dyspraxia at Elementary level. In a population, to study entire cases is generally impractical or impossible (Durrheim, 2006). Target population generally defines those units for which findings of the study are meant to generalize. The target population of indicated study was Elementary teachers of mainstream Elementary schools in the Lahore city of Pakistan. The size of the sample helps the researcher in judging the result of the research. In selecting the sample size, this study focused on teachers of 40 Elementary schools which concede to cooperate in the research and only 500 teachers were admit to participate in the study.

Data Collection Instrument

The data collection in this study was quantitative in nature. A self-constructed five points Likert type scale was used.

Reliability of the Instrument

Teachers' awareness regarding dyspraxia were measured by the five point Likert scale i.e. 1= Strongly Agree, 2=Agree, 3= Unsure, 4= Disagree and 5= Strongly Disagree. Edward G. Carmines & Richard A. Zeller defined reliability in 1979 as: it refers to an extent to which any measuring procedure, experiment or test produces the same or similar results on frequent trials. In other words, when the same or similar measurements occur on repeated trials then it is said to be reliable. Reliability is all about measurement consistency or stability. It is concerned with how well it is measured rather then what is measured. According to De Vos et al. (2005) test-retest method, split-half techniques and other alternate form methods are used for testing reliability of an instrument. Table 1 below shows the Cronbach's alpha value for the questionnaire.

Table 1
Reliability Statistics

No. of Items	Cronbach's Alpha
23	.861

Any research instrument having Cronbach's Alpha above 0.70 is accepted as enough reliable (Gay, 1992). The Cronbach's alpha value of this research instrument was 0.861 for 23 items, which was above the acceptable value of 0.70. Thus, have a good reliability. Two sections of the questionnaire i.e. level of knowledge of dyspraxia and perception related to identification of pupils with dyspraxia in the classroom were found to have a good alpha values and remaining one section i.e. perception about management of pupils with dyspraxia in the classroom have an acceptable alpha value. Table 3 below shows the Cronbach alpha values for different sections of the questionnaire.

Table 2
Reliability Statistics of Different factors

Factors	Cronbach's alpha value
II: Knowledge level about dyspraxia	0.849
III: Perception related to identification of dyspraxic pupils in the classroom	0.823
IV: Perception about management of pupils with dyspraxia in the classroom	0.731

Instrument Validity

Validity is the degree to which data analysis results actually represents the phenomena under study. The instrument content validity was assured by the involvement of research experts from the field. This was ensured that the content avoids vagueness and it addresses intended responses.

Results

The collected data for this study was analyzed through descriptive statistics.

Table 3
Frequency, mean and standard Deviation of statements

	Statements	SA	A	N	DA	SD	mean	St. D.
1.	Dyspraxia is a brain-based disorder	39.0	44.1	13.2	2.6	1.2	3.78	.893
2.	It is sometimes called "clumsy child syndrome"	5.0	13.3	15.8	52.5	13.3	3.56	1.044
3.	Boys are more likely to be sufferer than girls	20.8	46.4	23.7	6.2	2.4	2.8	.878
4.	Dyspraxia affects the children planning of movements and coordination	19.2	36.5	29.2	11.2	4.2	3.82	.907
5.	Dyspraxia affects the most of the school-aged children	25.3	39.3	20.3	9.2	4.2	3.59	1.096
6.	Dyspraxia occurs as a result of brain messages not being accurately transmitted to the body of the children	52.0	10.0	17.5	5.5	15.0	3.60	3.38

7.	Dyspraxia has no cure but can be managed through strategies.	4.2	22.5	20.0	41.7	11.7	3.34	1.081
8.	developmental coordination disorder (DCD) is also named as motor learning difficulties	26.0	34.2	24.5	8.4	6.5	3.69	1.035
9.	Dyspraxia is not a rare disorder but it is not always recognized unless specifically sought for	21.1	37.2	28.5	9.5	3.4	3.44	1.011
10.	Children with dyspraxia may have other disabilities such as ADHD or autism	19.8	42.3	23.4	3.4	5.7	3.74	.884
11.	Dyspraxia students avoid casual conversations for fear of saying something embarrassing.	8.8	14.7	29.4	20.6	26.5	3.15	1.282
12.	Mathematics and writing are difficult for dyspraxics because of their slowness in writing speed.	8.8	23.5	26.5	26.5	14.7	2.62	1.209
13.	I am able to diagnose the indications or attributes of dyspraxia.	20.6	23.5	32.4	20.6	2.9	3.26	1.129
14.	I can handle students withDyspraxia.	8.8	14.7	29.4	20.6	26.5	3.15	1.282
15.	I use diagrams and larger prints in summaries for students with Dyspraxia.	14.7	54.7	14.7	5.9	10.5	2.12	.898
16.	I provide copies of notes to the students with Dyspraxia as they have problems in what to write down when reading from the board.	11.8	41.2	32.4	5.9	8.8	2.59	.729
17.	I believe that I make instructions clear, explicit and uncomplicated for students with Dyspraxia.	29.4	37.1	13.5	10.2	10.5	1.94	1.076
18.	I consider topic lists or graphic organizers so they can see ‘the whole picture’.	5.9	58.8	20.6	8.8	5.9	2.50	.736
19.	I believe that I use verbal cues to gain attention and focus of students with Dyspraxia.	14.7	42.9	20.6	11.8	10.6	2.29	.871
20.	I allow additional response time and extra time for completing work.	29.4	38.2	26.5	2.9	2.9	2.12	.977
21.	I always encourage the students with Dyspraxia to engage with peers in different activities.	14.7	35.3	26.5	17.6	5.9	2.53	.929
22.	I believe that I Provide clear models for sound production.	23.5	29.4	20.6	17.6	8.8	2.65	1.125
23.	I seat students with Dyspraxia, closer to the board and teacher.	5.9	58.8	20.6	8.8	5.9	2.59	1.282

It can be inferred from the table above that, 83.2 percent of respondents believed that dyspraxia is a brain based disorder while 13.3 percent of respondents had no opinion and 3.6 percent of respondents believe that dyspraxia is not a brain based disorder.

It is revealed from the analysis that 67.2 percent of respondents agreed that dyspraxia is sometimes called “clumsy child syndrome” while 9.1 of respondents disagreed with it.

It can be deduced from the above table that out of 308 respondents, 55.6 percent of respondents believed that the chances of boys to be suffered from dyspraxia are more likely to occur as compared to girls while 29.2 percent of respondents remained unsure about this statement and 15.3 percent of respondents had opinion that boys are more likely to be sufferer than girls.

The response towards the statement that dyspraxia affects the children's planning of movements and coordination shows that 64.6 percent of respondents agreed that children's planning of movements and coordination is affected by dyspraxia while 14.6 percent of respondents believed that there is no effect of dyspraxia on children's planning of coordination and movements.

Analysis regarding the statement that dyspraxia affects the most of the school-aged children revealed that out of 308 respondents, 60.4 percent of respondents agreed with that mostly school aged children are affected by dyspraxia.

It can be inferred from the table that 58.4 percent of respondents had knowledge about the cause of dyspraxia that it occurs as a result when brain messages not being accurately transmitted to the body of the children while 12.9 percent of respondents believed that dyspraxia does not occurs due to this cause and 28.6 percent of respondents showed no opinion.

It can be deduced from the table that out of 308 respondents, 65.6 percent of respondents agreed that different strategies can help in managing pupils

It is revealed from the analysis that 58.8 percent of respondents agreed that it is also known as motor learning difficulty while 33.1 percent of respondents had no opinion and 8.1 percent of respondents believed that dyspraxia does not known as motor learning difficulty.

It can be inferred that greater part of participants from the sample i.e. 66.9 percent of participants had believed in that dyspraxia is not a rare disorder and not always recognized unless specifically sought for it. It can also be deduced that out of 308 respondents 46.1 percent of respondents had opinion that dyspraxics may have other disabilities like ADHD or autism.

It is apparent that out of 308 respondents, 64 percent of respondents believed that dyspraxia affects the physical coordination of the child.

It can be observed from the results given in the table that most of the responses are falling under strongly disagree, disagree and neutral for each statement so it means they are not aware with this learning difficulty.

To determine if there was statistically difference found in teachers' perceptions regarding dyspraxia between two independent groups (i.e. male and female) or not, an independent sample t-test was conducted.

Table 4
t-test to find out difference in the perceptions of teachers on the basis of gender

	N	Mean	Std. Deviation	Df	t	Sig.
Male	105	2.2980	.54823	306	.930	.200
Female	203	2.2393	.51226	198.318		

The table above presents the significance value of this t-test (p = .200) signifies that the difference between the means of male and female (i.e. 0.059). Since 0.200 is greater than the standard alpha value (p = .05), therefore statistically no difference is found in the level of awareness regarding dyspraxia among males and females. In the scores for male (M = 2.30, SD = 0.548) and female (M = 2.24, SD = 0.512) conditions; t (306) = 0.930, p = 0.35 no significant difference is found. The results indicate that there was no impact of respondents' gender found on the level of perceptions regarding dyspraxia.

To determine the statistical difference of teachers' awareness regarding dyspraxia between two independent groups (i.e. urban and rural), an independent sample t-test was conducted as shown in the table 3 below.

Table 5
t-test to find out difference in the perceptions of teachers on the basis of gender Locality (Urban/Rural)

	N	*Mean*	*Std. Deviation*	*Df*	*T*	*Sig.*
Urban	251	2.2441	.51644	306	-1.066	.123
Rural	57	2.3262	.55922	79.128		

The results from the table shows that the significance value of this t-test (p = .123) tells that the difference between the means of urban and rural is (i.e. -0.082. since .123 is greater than the alpha value (p = .05), therefore statistically no difference is found in the level of awareness regarding dyspraxia among urban and rural. In the scores for urban (M = 2.24, SD = 0.516) and rural (M = 2.33, SD = 0.559) conditions; t (306) = -1.066, p = 0.29 no significant difference is found. The results indicate that there was no impact of respondents' locality found on the level of perceptions regarding dyspraxia.

Table 6
ANOVA to find out difference in the perceptions of teachers on the basis of age

		Sum of Squares	*Df*	*F*	*Sig.*
Age Group	Between Groups	3.023	4	2.810	.026
	Within Groups	81.481	303		
Total		84.504	307		

The table shows that the one-way analysis of variance has a significance value of 0.026 (p = .026), which is greater than 0.01. Therefore, no statistically significant difference is found in the perceptions regarding dyspraxia between the groups [F (4, 303) = 2.810, p = 0.026]. By Post hoc comparisons, the results revealed that mean score for the group 1 (M = 2.29, SD = 0.503); group 2 (M = 2.30, SD = 0.504); group 3 (M = 2.00, SD = 0.534); group 4 (M = 2.32, SD = 0.601) and group 5 (M = 2.42, SD = 0.00) are significantly not different. Hence, these results indicated that there was no impact of teachers' age groups on their perceptions regarding dyspraxia.

To investigate the impact of teachers' qualification on perceptions regarding dyspraxia, an ANOVA test was conducted. Five groups were there (i.e. Matric = 1; Inter = 2; Bachelors = 3; Masters = 4 and above = 5).

Table 7
ANOVA to find out difference in the perceptions of teachers on the basis of Qualification

		Sum of Squares	Df	f	Sig.
Qualification	Between Groups	7.129	4	6.979	.000
	Within Groups	77.375	303		
Total		84.504	307		

The table above shows that the significance value of this test is 0.000 (p = .000), which is below 0.01. Therefore, a statistically significant difference in the mean level of awareness of dyspraxia between the five qualification groups [F (4, 303) = 6.979, p = 0.000] was found. Using Post hoc comparisons, the results revealed that mean score for the Matric (M = 2.48, SD = 0.342); Inter (M = 2.54, SD = 0.516); Bachelors (M = 2.39, SD = 0.569); Masters (M = 2.12, SD = 0.486); and above (M = 2.31, SD = 0.478) are significantly different. Hence, these results indicated that there was an impact of teachers' educational qualification is found on their level of awareness regarding dyspraxia.

To investigate the impact of teachers' experience on their level of awareness regarding dyspraxia, a one-way ANOVA was conducted. According to their number of years in teaching profession, teachers were divided into five groups i.e. group 1 was assigned to 1-10 years; Group 2 was assigned to 10-20 years; Group 3 was assigned to 20-30 years; Group 4 was assigned to 30-40 years and Group 5 was assigned to 40+ years.

Table 8
ANOVA to find out difference in the perceptions of teachers on the basis of Experience

		Sum of Squares	*df.*	*F*	*Sig.*
Experience	Between Groups	3.617	4	3.388	.010
	Within Groups	80.886	303		
Total		84.504	307		

The table 5 indicates that the one-way analysis of variance has a significance value of 0.010 (p = .010), which is equal to 0.01. Therefore, a statistically significant difference was found in the mean level of awareness of dyspraxia between the five groups of experience [F (4, 303) = 3.388, p = 0.010]. Using Post hoc comparisons, the results revealed that mean score for the group 1 (M = 2.29, SD = 0.485); Group 2 (M = 2.33, SD = 0.550); Group 3 (M = 2.16, SD = 0.576); Group 4 (M = 1.80, SD = 0.467); and Group 5 (M = 2.27, SD = 0.000) are significantly different. Hence, these results indicated that there was an impact of teachers' number of years in teaching profession on their level of awareness regarding dyspraxia.

Discussion and Conclusion

The findings expressed that teachers of mainstream elementary schools have had believe that they have adequate knowledge of dyspraxia. The results of this study were supported by the research related to teachers' awareness regarding dyspraxia i.e. a study was done by Shaye (2012) on the teachers' awareness towards the term dyspraxia and the teachers were well aware of the term dyspraxia, who pointed that 61 percent of respondents successfully defined the term 'dyspraxia'. According to a research it was found that mainstream teachers generally have lack of understanding of learning disabilities (Ade-Ojo, 2011). On the contrary, the results of this study indicated that teachers had sufficient knowledge about the effects of dyspraxia on the planning of movements and coordination of the child. Dyspraxia is caused when a brain can't convey messages to the body properly. The results explored the respondents' adequate understanding about the cause of dyspraxia that it occurs as a result when brain messages not accurately transmitted to the body of the children. According to (Al-Rowais, Wald, & Wills, 2013) although the difficulties faced by children with dyspraxia in classroom are readily observable, still they remain undiagnosed unless academic failure occurs to them. The special education teachers and classroom teachers both are most often the initial source for the identification of students with dyspraxia when they notice some sort of poor skill development affecting academic performance (Alborno, & Gaad, 2014).

The research revealed that teachers have had believe that they had the ability to diagnose the indications or attributes of dyspraxia. It is difficult to identify the true symptoms of dyspraxia because of its overlapping properties with other learning difficulties (Alexander-2016). Furthermore, teachers said that they were able to diagnose the attributes of a dyspraxia as opposite to that of lethargic learner (i.e. slow learner). It was not supported by Cicerchia (2016), who claimed that teacher may mistakenly label children as lazy due to the symptoms of acting out. Moreover, the respondents were having strong belief that with regard to dyspraxia, they can able to diagnose such learners which are in need of an indicative assessment. It was supported by the researcher who pointed out that teachers can identify the dyspraxia students but Literature suggests that teachers failed to notice the problems of children with dyspraxia (Al-Ghizzi, 2015). The research basically revealed that majority of teachers had the ability to identify the students with the problem of dyspraxia in the classroom which means that teachers of mainstream elementary schools were responsible towards their profession. It was supported by Cook and Collinson, (2013), who pointed out that one of the responsibility for the teacher is the identification of children likely to have special education needs as early as possible.

It can be concluded that some classroom learning issues always remain present in students no matter how intelligent and creative he is. The identification of learning difficulties is often first obstacle this is because when it goes undiagnosed, it can affect students' self-esteem. Teacher may mistakenly label children as lazy due to the symptoms of acting out. Furthermore, they may not provide the support needed for such students. No two individual with dyspraxia shows same set of symptoms. Costenaro, and Pesce, (2012) said that there might be such children which shows symptoms like nervousness and likely to lose their homework and confuse the specifications of task and have trouble with sitting up at their tables.

Recommendations of the Study

On the basis of Research Findings several recommendations can be made for consideration by the government, schools management and teachers.

1. Teachers should provide them flexible and extended deadlines for homework. Give them directions of any new task in short sentences and slowly. For longer assignments, give checklist, visuals and step by step directions.
2. Government should arrange seminars on best teaching strategies used to deal with dyspraxia.
3. The school management should put in place clear ways of encouraging students with dyspraxia in order to succeed them academically and satisfy their expectations by giving them opportunity for growth and development.
4. Schools should offer training programmes for Teachers to deal with dyspraxia.

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