Appendices

Appendix (1). Irlen Self-Test For Light Sensitivity.

Item	
Do you experience strain or fatigue working or reading under fluorescent lights?	
Yes	No
Bothered by glare outside; glare off chrome on cars?	
Yes	No
Bothered by glare off high gloss white paper?	
Yes	No
Bothered by glare on hazy days?	
Yes	No
Bothered by bright lights?	
Yes	No
Bothered by fluorescent lights?	
Yes	No
Bothered by headlights from oncoming traffic?	
Yes	No
Do you frequently wear sunglasses?	
Yes	No
Do you become tired or drowsy under bright or fluorescent lighting?	
Yes	No
Do you get a headache from fluorescent lighting?	
Yes	No
Do you feel antsy or fidgety when under fluorescent lighting?	
Yes	No
Does your performance deteriorate under bright or fluorescent lighting?	
Yes	No
Do you feel like there is too much light when reading?	
Yes	No
Do you feel like there is not enough light when reading?	
Yes	No
Do you read in dim lighting?	
Yes	No
Do you feel like you need less light to read?	
Yes	No
Bothered by sunlight?	
Yes	No

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Table (7) Shows that:

- Males are affected more than females in all degrees of SSS, males infection by SSS from the total sample was (51%) in the simple degree, (52.3%) in the moderate degree, and (53.1%) in the severe degree.
- The more SSS degree increased, the less females infection occur, compared to the males, in which the difference percentage between males and females in SSS simple degree was (2%), (4.6%) in the moderate degree, and (6.2%) in the severe degree.
- The most common degrees of SSS for males and females was the moderate one, (91) for males and (83) for females, followed by the moderate degree, (49) for males and (47) for females. While the least common was SSS severe degree, (26) infections for males and (23) infections for females.

Means and standard deviations were calculated for SSS degree according to the gender variable, as shown in table (8)

Table (8). Means and Standard Deviations for SSS degree according to the gender variable.

Gender	Number	Mean	Standard Deviation
Male	166	9.24	2.884
Female	153	9.36	2.896

Table (8) shows that there are differences between SSS degree means for children of preliminary stage in Aseer Area attributed to gender variable, for the favor of female students, mean's difference was (0.12), (T) test for independent variables was used in order to check if those differences are statistical significant, table (9) shows the results.

Table (9). T-test results for SSS degree according to gender variable.

T	Significance
0.037	0.715

Table (9) shows that (T) value was (0.037) with a probability of (0.715), which is less than the specified value (0.05), which means that these differences are not statistical significance, then, there are no statistical significant differences on the level ($\alpha \leq 0.05$) in SSS degree for children in preliminary stage in Aseer Area that could be attributed to gender variable. The researchers interpret that gender variable doesn't affect experiencing SSS maybe referred to the probability of other factors, such as hereditary factor or environmental factor to experience SSS.

Conclusion:

This study conclude that there is a significant percentage of children diagnosed with learning disabilities are suffering from SSS, with a percentage of 46%, which have helped in increasing the percentage of children diagnosed with learning disabilities, while they are not suffering from learning disabilities.

Recommendations:

In the light of the previous results, the researchers recommend the following:

1-Preparing diagnosing tools to develop evaluation and examining process, by removing the mistakes that accompany children's SSS diagnosis, the diagnosis process most of the time ends with referring children to learning disabilities program.

2-Preparing awareness programs for the teachers to identify the different indicators (educational and demographic) that accompany SSS phenomenon.

3-Training teachers and psychiatric specialists with learning disability programs to implement Teachers Evaluation List for SSS Children's Behavior -which is developed by this study- in the initial categorizing processes for children experiencing SSS.

4-Conducting a survey study similar to the current study in learning disabilities to identify the extent of SSS phenomenon prevailing.

To answer this question, frequencies and percentages were calculated for the relationship between SSS degree and the age, table (5) shows that.

Table (5). The relationship between SSS degree and the age.

SSS Degree	Age	Frequency	Percentage
Simple	6-9	42	43.8%
	10-12	54	56.2%
	Total	96	100%
Moderate	6-9	87	50%
	10-12	87	50%
	Total	174	100%
Severe	6-9	19	38.8%
	10-12	30	61.2%
	Total	49	100%

Table (5) shows that children with ages of (10-12) was the most experiencing SSS, total number of children experiencing all SSS grades was (171), total number of children of (6-9) years old experiencing SSS were (148) male and female students. One-Way ANOVA test was used in order to know if these differences are significant or not, table (6) shows the results.

Table (6). One Way ANOVA test for differences in SSS degree and the age.

	Total of the Squares	Mean of the Squares	F	Significance
Between the groups	6.271	3.136	0.375	0.688
Within the Groups	2642.437	8.362		
Total	2648.708			

Table (6) shows that there are no significant statistical differences between SSS degree for children of preliminary stage could be attributed to the variable of age, (F) score was (0.375) with probability of (0.688), it is more than the specified value (0.05), the researchers interpret that age variable doesn't affect experiencing SSS maybe referred to the probability of other factors, such as hereditary factor or environmental factor to experience SSS.

Answering the fourth question: Are there significant statistical differences on the level ($\alpha \leq 0.05$) in SSS's degree for learning disability students of preliminary stage in Aseer Area, attributed to gender?

To answer this question, frequencies and percentages were calculated for the relationship between SSS degree and gender, table (7) shows that.

Table (7). The relationship between SSS degree and gender.

SSS Degree	Gender	Frequency	Percentage
Simple	Male	49	51%
	Female	47	49%
	Total	96	100%
Moderate	Male	91	52.3%
	Female	83	47.7%
	Total	174	100%
Severe	Male	26	53.1%
	Female	23	46.9%
	Total	49	100%

Table (3) shows that SSS degree was more for males than females; SSS moderate degree scored the highest percentage for the children of the sample of the study (54.5%), followed by SSS simple degree (30.1%), finally, SSS severe degree scored the least with (15.4%).

It should be noted that SSS moderate degree was the most common, the researchers attribute that to non-existence of rehabilitation and treatment programs that help students with simple SSS to get cured, which lead to its development to the moderate degree, therefore moderate SSS degree was the most common among the rest degrees in the sample of the study.

Frequencies and percentages for SSS degrees for the sample of the study were extracted for each item of SSS scale items, as shown in table (4).

Table (4). Sample of the Study Frequencies and Percentages for each item of SSS scale items.

Item Number	Item	Answer	Frequency	Percentage
1	Do you experience strain or fatigue working or reading under fluorescent lights?	Yes*	134	42
		No	185	58
2	Bothered by glare outside; glare off chrome on cars?	Yes*	159	49.8
		No	160	50.2
3	Bothered by glare off high gloss white paper?	Yes	175	54.9
		No*	144	45.1
4	Bothered by glare on hazy days?	Yes	202	63.3
		No*	117	36.7
5	Bothered by bright lights?	Yes*	139	43.6
		No	180	56.4
6	Bothered by fluorescent lights?	Yes*	130	40.8
		No	189	59.2
7	Bothered by headlights from oncoming traffic?	Yes*	131	41.1
		No	188	58.9
8	Do you frequently wear sunglasses?	Yes*	179	56.1
		No	140	43.9
9	Do you become tired or drowsy under bright or fluorescent lighting?	Yes*	146	45.8
		No	173	54.2
10	Do you get a headache from fluorescent lighting?	Yes	196	61.4
		No*	123	38.6
11	Do you feel antsy or fidgety when under fluorescent lighting?	Yes	251	78.7
		No*	68	21.3
12	Does your performance deteriorate under bright or fluorescent lighting?	Yes	176	55.2
		No*	143	44.8
13	Do you feel like there is too much light when reading?	Yes*	250	78.4
		No	69	21.6
14	Do you feel like there is not enough light when reading?	Yes*	186	58.3
		No	133	41.7
15	Do you read in dim lighting?	Yes*	226	70.8
		No	93	29.2
16	Do you feel like you need less light to read?	Yes	195	61.1
		No*	124	38.9
17	Bothered by sunlight?	Yes	179	56.1
		No	140	43.9

* Answer indicating the existence of SSS.

Table (4) shows that SSS symptoms for the children of the sample of the study has been shown on the items (8, 13, 14, 15, 17), percentage of children experiencing SSS to these items (56.1%, 78.4%, 58.3%, 70.8%, 56.1%), in which it wasn't shown on the other items.

Answering the third question: Are there significant statistical differences on the level ($\alpha \leq 0.05$) in SSS's degree for learning disability students of preliminary stage in Aseer Area, attributed to age?

Table (1). Scale of the Tool of the study.

Degree	SSS severity
1-6	Simple
7-12	Moderate
13 and more	Severe

Variables of the Study:

The study involved the following variables:

First: independent variables, including:

- Gender (male / female).
- Age (6-9 / 10-12).

Second: dependent variable, represented by the remarks on the questionnaire.

Statistical Analysis:

The researchers used:

- Frequencies and percentages.
- Means and standard deviations.
- One-Way ANOVA test.
- (T-Test) for independent sample.

Results of the study:

Answering the first question: "What is SSS's distribution percentage in Aseer area?", and to determine the distribution degree of SSS for the children of the population of the study (319) male and female, in the light of what have been found, percentages were calculated as shown in table (2).

Table (2). Spread of SSS according to its severity.

Degree of SSS	Frequency	Percentage	Distribution
Simple	96	30.1%	0.15%
Moderate	174	54.5%	0.28%
Severe	49	15.4%	0.08%
Total	319	100%	0.51%

Table (2) shows that the percentage of SSS distribution in all its degrees of severity, simple, moderate, and severe, was (0.51%) of the population of the study, showing that the highest rate of SSS distribution is the moderate degree (0.28%), and the least rate was the high degree (0.08%).

The researchers attribute the difference of this study with the previous studies to the change of time and place, environment lack for examining programs, treatment, and programs related to SSS.

Answering the second question: "What is the SSS's degree for learning disability students of preliminary stage in Aseer Area?"

The researchers calculated frequencies and percentages of SSS degree for the sample of the study, depending on SSS degrees on the scale of the study, as shown in table (3).

Table (3). Frequencies and Percentages for SSS degree for the sample of the study.

SSS Degree	Gender	Frequency	Percentage	Frequency	Percentage
Simple	Male	49	51%	96	30.1%
	Female	47	49%		
Moderate	Male	91	52.3%	174	54.5%
	Female	83	47.7%		
Severe	Male	26	53.1%	49	15.4%
	Female	23	46.9%		
Total	Male	166	52%	319	100%
	Female	153	48%		

using the overlays, the study pointed out that eye-movement development test is used to evaluate the behavior of horizontal scan process for a number of works, each of both tests in this study were designed to determine if the colored overlays can improve reading or scanning performance, the study found that reading percentage for some students was improved by using colored overlays despite that eye-movement development test resulted in enhancing reading performance.

The previous studies proved its effectiveness in reducing the severity of SSS-based reading problems and in improving academic achievement, the current study is similar to the previous studies in regard to the topic, treatment methods, and the tools of that studies. It is the first Arabian study, as far as the authors know, which tackled dyspraxia development for children of learning disabilities, it is also distinguished for using controlled scale of creditability and reliability indicators, also, there is no Arabic study ever used a treatment method to cure learning disability children who suffer from SSS, which help in curing them.

This study covers an important issue of learning disabilities, which was not covered by the previous studies, the researchers developed a scale came from the disabilities pointed out by the previous literature and the experimental studies, which are considered as indicators for learning disabilities.

The researchers made use from the related studies in the procedures of this study, especially in choosing the sample and in developing the tools of the study, it can be noticed that there is a lack in Arabic studies that discussed SSS.

Procedures of the study

Method of the study:

The researchers used the descriptive survey method to answer the questions of the study.

Sample of the study:

Sample of the study consisted of (319) of learning disabilities' program students in the schools of Aseer Area directorate of education, from first to sixth grade, ages ranged from (6-12) years.

Tool of the study:

The researchers used (Irlen Self-Test for Light Sensitivity) consisted of (17) items, (see appendix 1), it has been applied for (319) male and female students, reliability and credibility indicators were extracted, reliability coefficient was (0.91).

The researchers translated the test, of 17 items; it was divided into two sections:

1-Section one: addressing learning disabilities' teachers, contains questions regarding general preferences about learning disabilities.

2-Section two: containing global measure to measure SSS, called (Irlen Self-Test for Light Sensitivity), consisting of (17) items, the student answers them by yes or no, with teacher's help.

Credibility of the Tool:

To verify the credibility of the questionnaire, it has been presented to ten qualified and experienced referees of lecturing and practical committees in King Khaled University, Jeddah University, Um AlQura University, Taiba University, and the Hashemite University, the consistency was (90%).

Reliability of the tool:

To verify the reliability of the tool, the researchers used test and retest method on a scout sample within population of the study, outside of the sample of the study, consisted of (15) male and female students, studing in Aseer Area schools, questionnaires were collected, and after three weeks, the researchers reapplied the tool on the sample, the consistency coefficient was (0.91), which is accepted to conduct the study, also, Cronbach's Alpha coefficient for internal consistency among the items of the study was calculated, which was (0.90), which is accepted as well.

Remarking the tool:

To remark the tool of the study, the researchers depended on:

1-Giving the answer (yes) one point, and (no) zero, for the items (1, 2, 5, 6, 7, 8, 9, 13, 14, 15).

2-Giving the answer (yes) zero, and (no) one point, for the items (3, 4, 10, 11, 12, 16, 17).

The researchers used the scale (presented in table 1) to determine the severity of SSS:

Loew, S., Marsh, N., and Watson, K. (2014) has conducted a study, entitled with: Symptoms of Meares-lrlen/Visual Stress Syndrome in subjects diagnosed with Chronic Fatigue Syndrome, aimed at examining specific incidences of nine widely-recognized symptoms of visual stress (VS) in a group of subjects (n = 20) previously diagnosed with CFS. The presence of each symptom of VS in the CFS group was compared to its respective presence in both an age and sex matched healthy comparison group (n = 46), and an age and sex matched group comprised of individuals (n = 14) diagnosed with VS. Results showed the frequencies of all nine VS symptoms in the CFS-diagnosed group to be significantly higher ($p = .032$ - $p < .0005$) than in the comparison group, with only two symptoms being statistically less frequent in the CFS group than in the VS-diagnosed group. The average number of VS symptoms reported by the CFS group was also significantly higher than the comparison group, yet not significantly different from the VS group.

Hall, R., Ray, N., Harries, P., and Stein, J. (2013), conducted a study entitled with "A comparison of two-colored filter systems for treating visual reading Difficulties", This study aimed to compare between two-colored filter systems to remedy visual dyslexia, in which visual disorders makes reading difficult, this process is called (visual stress), results showed that reading was improved significantly after wearing either type of filter (t¼_8.4, p50.01), with 40% of the children improving their reading age by 6 months or more during the 3 month trial, and concluded that education and rehabilitation professionals should therefore, consider colored filters as an effective intervention for delayed readers experiencing visual stress.

Ritchie, S., Della, S., and Mcintosh, R. (2011) conducted a study entitled with "Irlen Colored Overlays Do not Alleviate Reading Difficulties", sample of the study consisted of (61) schoolchildren (aged 7–12 years), including (44) child experiencing Irlen's syndrome symptoms, the study was deigned to examine differences in reading rate across 3 conditions: using an overlay of a prescribed color; using an overlay of a non-prescribed color; and using no overlay. Irlen colored overlays had been used within a global reading measure, results showed that (77%) of the diagnosed as suffering from Irlen's syndrome and reading difficulty have no reading improvement after using the colored overlays, there was no evidence for any immediate benefit of Irlen colored overlays as measured by the reading-rate test or the global reading measure, and it may have obvious benefit on the long-term.

Mitchel, C., Mansfield, D., and Rautenbach, S. (2008) conducted a study entitled with colored filters and reading accuracy, comprehension and rate: a placebo-controlled study, which depended on the experimental approach, involving (49) participants with visuo-perceptual reading disabilities. Participants were divided into a control group who received no intervention, a placebo group who received filters in a color complementary to the individual's optimal color, and an experimental group who received specifically matched colored filters. At posttest the experimental group reported statistically significantly fewer visual discomfort symptoms. Results showed that the limitation in visu-perceptual which is not diagnosed by optical test, maybe responsible for a specific deficit in reading, also, results showed that using different colors of overlays may lead to reduce this deficit, consequently, will improve the reading performance, the worrying optical symptoms of the placebo group were less than with the others.

Abuhayeh (2006), conducted a study aimed to "Identify the effectiveness of colored overlays technology, a training program, and self-concept in improving reading skills", population of the study consisted of students of high-preliminary stage (age average of 9 years), in Riyadh's private and public schools in Saudi Arabia, who visits optics welfare center due to issues with their reading abilities, sample of the study consisted of (90) child referring to the center, rated conceptual tests, TONI IQ test, Piers-Harris Children's Self-Concept Scale, and reading speed test were used, the study found that the colored overlays technology are effective in improving reading ability and self-concept for children experiencing dyslexia, while the training program was more effective in improving reading ability for this category.

Zuraiqat and Alimam (2004), conducted a study to identify "The effect of using Chromagen filters in enhancing reading ability for Dyslexia children", the sample of the study consisted of (11) children diagnosed with dyslexia of Amman city's schools, the researchers used one group pretest-posttest design to compare between the averages of pretest and posttest and the performance of the sample of the study, results showed a significant statistical differences in the averages of pretest and posttest at the level (0.05), that is using Chromagen filters is effective in reading improvement for dyslexia children.

Northway (2002), conducted a study to measure "forecast range to continue using overlays in children's schools", using a comparison approach to compare between eye-movement test and reading average test. The study found that colored transparent overlays increased the reading speed and ability for children experiencing dyslexia and reading difficulty, but evaluating the effectiveness of the overlays was probably not objectively, in the objective evaluation it has been found that the increase in reading speed for more than (5%) is considered a positive assumption to continue

2-What is the SSS's degree for learning disability students of preliminary stage in Aseer Area?

3-Are there significant statistical differences on the level ($\alpha \leq 0.05$) in SSS's degree for learning disability students of preliminary stage in Aseer Area, attributed to age?

4-Are there significant statistical differences on the level ($\alpha \leq 0.05$) in SSS's degree for learning disability students of preliminary stage in Aseer Area, attributed to gender?

Importance of the study:

The importance of this study is highlighted in the following:

1-The study contributes to finding essential data about SSS students in the reality practicing field.

2-This study sheds the light on the reality of diagnosis and evaluation processes which were going in learning disabilities programs in Abha city.

3-This study encourages securing adequate parental services for SSS children with learning disabilities' programs in Abha city.

4-This study contributes to providing important statistics that support the literature of SSS.

Terms of the study:

Scotopic Sensitivity Syndrome (SSS): is a functional disorder in the perception which affects child's ability to see clearly, resulting reading difficulties, in other words, sources of the light with black-printed page makes an overlap that make the child see distorted page, specially with strong light, or when the child is reading under white light (fluorescent), these symptoms graduate from low up to severe, and has many name: Irlen Syndrome, or Scotopic Sensitivity Syndrome (SSS).

Learning Disability Programs in Aseer Area: educational programs attached to ordinary preliminary schools of Educational Managements in Aseer area, consisted of resources rooms and specialized teachers in educating learning disability students, it also contain the required services for this category.

Limitations of the study:

The current study has been conducted in preliminary schools in Aseer area within the academic year 2016/2017, its results are limited to the sample of the study and the tools that have been used.

Literature review:

The researchers tried to reach Arabic studies related to the topic, but there were no related studies in regard to SSS (Irlen's lenses) to improve reading abilities for those who suffer from reading difficulties, there were only two studies for Chromagen lenses, which are similar to Irlen's lenses, following are those two studies, in addition to foreign studies which discussed Chromagen's and Irlen's lenses.

Griffiths, P, Taylor, R., Henderson, L., and Barrett, B., (2016) Conducted a study that present systematic review of SSS literature and examine the quality of the evidence, by reviewing the literature concerning the effect of coloured lenses or overlays on reading performance by searching the PsychInfo, Medline and Embase databases. Which revealed 51 published items (containing 54 data sets). Given that different systems are in use for issuing coloured overlays or lenses, they reviewed the evidence under four separate system headings (*Intuitive, Irlen, Harris/Chromagen* and *Other*), classifying each published item using the Cochrane *Risk of Bias* tool.

Short (2016), conducted a study which was meant to test the effects of colored overlays on reading in a specific group of high school students who had been diagnosed with learning disabilities in reading, findings indicated by this testing suggest that for 75% of the participants, here would be some benefit to using colored filters while reading. The most improved area was in decoding which made sense considering that Irlen (2005) suggested that this type of intervention may alleviate some of the issues that may interfere with decoding.

Uccula, A., Enna, M., and Mulatti, C. (2014) conducted a study entitled with " Colors, colored overlays, and reading skills", which aimed to determine the role of colors in reading written texts, arguing that colored overlays applied above written texts positively influence both reading fluency and reading speed. These effects would be particularly evident for those individuals affected by the so called Meares-Irlen syndrome, i.e., who experience eyestrain and/or visual distortions – e.g., color, shape, or movement illusions – while reading. This condition would interest the 12–14% of the general population and up to the 46% of the dyslexic population. Thus, colored overlays have been largely employed as a remedy for some aspects of the difficulties in reading experienced by dyslexic individuals.

Helen Irlen used complicated techniques and measurements; she used a measurement tool to measure the strength of brightness for different parts of the spectrum which consist the rainbow seven colors. The name of this device's name is (Spectrophotometer), it measures the preferences of each color according to the volume of brightness sent by it, and there are seventy five colored lenses that the examined can chose the easiest, more comfortable, and better for reading. As for the transparent layers, it works on the same principle, but with easier way, in which it is vulnerable to damage more than the lenses.

Reading preferences for those who suffer from SSS

- Slow and hesitated.
- Lack of fluency and efficiency.
- Variety of mistakes.
- Inability to continue reading.

How the child of SSS sees the written words:

- As if the words will fall down.
- There is overlap between them.
- Words are moving vertically, horizontally, or circularly.
- There is a halo around the words.
- Some letters disappear.

What is the role of SSS in relation with respect to other issues?

- Behavior: Unacceptable behavior.
- Attitude: failure to achieve other's expectations is ascribed to negative self-perception.
- Motivation: doesn't achieve, progress, or help the student to finish his homework, not because of lack of motivation as much the difficulty to accomplish his tasks, he can't interpret his failure despite his frequent attempts, while others are accomplishing what they have been asked for.
- Self-esteem: negative self-perception, the student recognizes from his first year in the school that he is not keeping up with others in different accomplishments, even it was reading, writing, or drawing skills…. etc.
- Athletics: difficulty in dealing with the ball, in tennis, ping-pong, or soccer.

Benefits of using Irlen's colored transparent layers and lenses with respect to reading:

- Increase in reading speed average.
- Increase in comprehension and understanding from reading item.
- Increase in reading accuracy.
- Increase in reading time period.
- Increase in concentration and less distraction.
- Decrease in fatigue and nervous.
- Less times to have headache.
- Significant enhancement in handwriting and less misspelling.

Problem of the study:

Some studies considered the definition, concept, and preferences of SSS students (Uccula, 2014; Loew, 2014; Hall, 2013; Richie, Della and Macintosh, 2011; Mitchell, Rautenbach & Mansfield, 2008; Abuhayeh, 2006; Zuraiqat and Alimam, 2004), by reviewing the previous studies, there is a gap in connecting these studies, which emerge a need for studies that determine the size of the phenomenon in the practical reality and the field in which this service is provided, is it obviously noticed that the diagnosis process and size determining of the phenomenon is neglected, this is an essential issue to prepare to serve this category, to enhance the diagnosis process in the field, which is almost concentrated on weakness areas for students subjected to learning disabilities' program. Also, the final diagnoses reports don't include any indicator to child's strength aspects.

Questions of the study:

The current study tried to answer the following questions:

1-What is SSS's distribution percentage in Aseer area?

Introduction:

Recently, there were many invitations in the educational conferences and international, Arabic scientific journals, as (Uccula, 2014; Loew, 2014; Hall, 2013; Richie, Della and Macintosh, 2011; Mitchell, Rautenbach & Mansfield, 2008; Abuhayeh, 2006; Zuraiqat and Alimam, 2004), to pay attention to those with SSS, due to the similarity between SSS symptoms and the symptoms of learning difficulties, which may mislead the diagnosis process, eventually, this category will not receive the appropriate services, in addition to increase the volume of learning disabilities category.

SSS is a functional disorder in the perception which affects child's ability to see the writing clearly, resulting reading difficulties, consequently, resulting writing difficulties and it is not related to optical limitation.

In another words, the overlap between brightness and printed page will make the child see a distorted page, especially with strong brightness or when the child reads under white light (florescent).

Children who suffer from SSS do not recognize that they see the page in a different way than others, they grow up and think that people can see as they see, SSS student feels that his achievement is less than his abilities, and usually suffers from other accompanying symptoms of learning disabilities (Irlen, 2004).

It must be acknowledged that Helen Irlen, who discovered this syndrome, is a specialized psychiatric specialist works in a school in California, found that some of the referred children were doing good after she gave their teachers some suggestions of how to deal with them, also, she found among those children a group that found reading so difficult in spite of having good verbal wealth, coding skills, and necessary skills for reading, (Irlen, 2004).

This group started to describe similar symptoms while reading, such as unclear writing, letters movement, headache, fatigue, and glare, accidentally, one of the students used a red transparent layer that he uses it for optical training, and told her "the letters had stopped moving", but this red transparent layer didn't work out with another student, Irlen went to the theater and brought colored layers which were used to light the theater, many students told her that the symptoms had been reduced after using a specific color of those colors, therefore, she thought to modify the colors to help people in reducing the symptoms while reading (Joubert, 2000).

It should be noted that (46%) of California schools' students who suffer from reading difficulties had (SSS), and (12%) from the total amount of those who read well have a low-middle degree of (SSS), usually they are of those who work seriously and spend a lot of time in reading but they don't achieve the results they expect in regard to their abilities, usually, their problems are not exposed because they handle it very well (Irlen, 2004).

Colored filters had been used since 1980 to help those who suffer from SSS for black and white printed materials, this disorder was called (Irles Syndrome), which was later called with (Irlen Meares Syndrome), that was after Meares had described it more widely, otherwise known as Scotopic Sensitivity Syndrome (SSS) considering that the symptoms are related to child's sensitivity against light which makes reading difficult (Robinson & Foreman, 2000).

As for its relation with learning disabilities, light sensitivity is not considered as learning disability but usually it is accompanying to learning disabilities and to differentiate between them needs knowledge and experience (Joubert, 2000).

Wilkins is considered of the first who pointed out to the effectiveness of this technology, in which he developed a device for this purpose called (Intuitive Colorimeter), after that, Haries had developed (Chromagen Filters System) which was authorized by FDA (Evans & Joseph, 2002).

This study came to complete the previous studies in this field; it represents a substantial part of the knowledge hierarchy to discover people with SSS, it emphasizes on discovering SSS students among the students who were diagnosed with learning disabilities only, also, it seeks to identify SSS's distribution percentage among learning disability students in Aseer area.

Components of SSS (Irlen Syndrome)

- Sensitivity to light.
- Inability to adapt with background.
- Print looks difficult to stable.
- Poor depth-perception.
- Limited range-recognition.
- Difficulty with paying attention.

The central nerve has a specified system related to light, brain has also a specific structure, the light coming from white page or sun glare will be analyzed to color spectrum, then, the signals sent through the nerves to the brain are distorted, which leads to distort the recognition process, this theory is well-known, the more organized and clear input, the more efficient, organized and clear outputs.

دراسة مسحية للكشف عن الطلبة ذوي تناذر الحساسية الضوئية ببرامج صعوبات التعلم في منطقة عسير

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ملخص الدراسة

هدفت هذه الدراسة إلى الكشف عن الطلبة ذوي تناذر الحساسية الضوئية وسط الطلبة الملتحقين ببرامج صعوبات التعلم بالمرحلة الابتدائية في منطقة عسير. ولتحقيق ذلك الهدف قام الباحثان باختيار عينة الدراسة التي تكونت من (٣١٩) طفلاً من ذوي صعوبات التعلم. وباستخدام بطارية للكشف عن ذوي تناذر الحساسية الضوئية، كشفت الدراسة عن مجموعة من النتائج أهمها: أن نسبة شيوع تناذر الحساسية الضوئية بجميع درجاتها اليسيرة والمتوسطة والشديدة يبلغ ٠,٥١٪ من مجتمع الدراسة، ونبهت الدراسة إلى ضرورة تطوير عمليات التقييم والتشخيص بحيث يتم التعرف على هذه الفئة بدقة حتى لا تصنف ضمن الفئات الأخرى ولا تتلقى الخدمات المناسبة.

الكلمات المفتاحية: (تناذر الحساسية الضوئية، صعوبات التعلم).

A Survey to Detect Students with Scotopic Sensitivity Syndrome (SSS) among Learning Disabilities Programs at Aseer Area

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Abstract

This study aims to discover Scotopic Sensitivity Syndrome (SSS) students among the students joining learning disabilities' program .To achieve this goal the sample of the study consisted of (319) children of learning disabilities, using a battery to discover SSS students. The study revealed some results, most important were: SSS spreading percentage, at its all stages (severe, moderate, simple), was 0.51% among the population of the study. The study pointed out to the importance of developing evaluation and diagnosis processes in order to identify this category accurately, not to let it be classified under other categories and receive inadequate services.

Keywords: Scotopic Sensitivity Syndrome (SSS), learning disabilities.

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