

# NON- VERBAL COMMUNICATION PATTERNS AMONG VISUALLY IMPAIRED INDIVIDUALS AGED 3-26 YEARS

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**Abstract Objectives:** This study investigated non- verbal communication patterns produced by visually impaired individuals aged 3-26 years, and the extent of being influenced by chronological age, the age in which visual impairment had occurred, and the visual impairment severity variables.

**Procedures :** In order to achieve study's objectives; 94 participants of parents and teachers of visually impaired students responded to Non-verbal Communication Patterns Scale, as well as, a video recording was taken to (36) visually impaired students aged 3-26 years. Means and standard deviations of parent and teacher responses were calculated along with One-way Analysis of Variance (ANOVA). Video recorded sessions were analyzed and coded in observation forms by two neutral raters.

**Results:** The results of conducted ANOVA revealed the presence of statistically significant differences in the visually impaired participants' production of non-verbal communication patterns on two variables: Face expressions of emotions and Para language sounds due to chronological age, while there were no statistically significant differences on body language variable. Results of Schaffe's Test revealed that 6-12 years age category had the most production of face expressions of emotions and Para language sounds, while 3-5 years age category had the least production in these domains.

The video recorded analysis results revealed the presence of differences in production means of visually impaired students of non-verbal communication patterns due to the age in which visual impairment had occurred, and to the severity of visual impairment variables; thus, those with low vision and acquired visual impairment had more production of non- verbal communication patterns in comparison to those with blindness and congenital visual impairment. Study

results were discussed; recommendations for further studies were expressed.

**Key words:** Visual impairment, face expressions, body language, para language sounds.

## LITERATURE REVIEW

Humans communicate continuously, for that reason communication is considered to be an essential activity and composition in people's life. There is no moment passes without individuals communicating with each other as long as there is a listener and receiver available whom can be communicated with Ho [1]; Frost & Bondy [2] , A person spends most of his/ her time communicating with other individuals in their society whether at home, work place, or in various social meetings where people exchange information, thoughts and feelings. This communication takes place simultaneously without thinking of the nature of such communication, how it happens and its types [1].

Actually, humans communication is not only restricted on the traditional communication via spoken language, but also through other patterns of communication which are also crucial in the delivery of intended message to the listener; one of these is non- verbal communication. This type of communication consists of all visible and audio messages except speech, whereas this type of messages are articulated through voice, tone, body posture, arm and hand gestures and face expressions. Thus, when people are involved in conversation; it may be noticed that they are not bound by word meanings because a great proportion of the meaning they want to convey is expressed through non- verbal means which take place simultaneously with speech whether intentionally or not. It can be said that message can be delivered within two levels go side by side: verbal and non-verbal [3].

When people talk to others they gesture, point with their hands to indicate distance, shapes, sizes and direction in order to assure certain conceptions and thoughts or to highlight the significance of sentences and phrases. Such gestures have been noticed among children even prior they acquire the ability to talk. Moreover, the use of gestures are observed among ethnic and groups with different backgrounds [4].

It is clear that people are more interested in non-verbal communication patterns. This is evident through their reliance on certain styles of non-verbal expressions and behaviors in order to explore other people feelings and reactions for the purpose of organizing interaction among them and realization of social reality [5].

Both verbal and non-verbal communication occur in social context, and it is easy to observe sighted people watching the mouth and the face of a person who speaks to them, especially in a situation where it is difficult to hear. In addition, people are interested in body posture and eye contact due to their belief that such things represent indicators of role exchange during conversation. Sighted individuals exert efforts in producing certain face expressions and emotions which can be observed by others such as: eye gaze, face expressions, and change in body posture from time to time for the purpose of providing a feedback to the listener. It is no doubt that such gestures contribute in directing the content of the dialogue through expressing interest or lack of interest, understanding or misunderstanding, and agreement or disagreement [6].

Non-verbal communication varies in term of its importance, and changes in its patterns according to the used communication channels, for instance, Gwyneth [7] suggests a classification for non-verbal communication includes: a – Body gestures, b- Eye gaze c- Face expressions, d- Body posture, and e- Non-verbal vocalization .

As long as this study talks about non-verbal communication and its effect on listener, and the extent of sighted people interest in and its connotations; it is axiomatic to question the role of vision sense in the development of non-verbal communication patterns versus to what extent its total or partial absence affects their development? In other words, to what extent visual impairment may affect the development of non- verbal communication patterns among visually impaired individuals and on their ability to produce such patterns; social competition, and be involved in various social interactions.

In this context; several studies have been conducted mainly on non- verbal communication patterns among

visually impaired individuals, for example, Iverson & Golden - meadow [4] discussed gestures used by congenitally blind children who never saw gestures before nor were experienced their communicative functions. Thus, gestures of four congenitally blind children were examined in three different situations: a- narrative, b- thinking c- and spatial directions. These, compared with sighted, and blindfolded children; Results revealed that congenitally blind children produced gestures but not in all situations as gestures produced by their counterparts, however, they were similar to those produced by sighted children in term of pattern and content. The study suggested that gestures provide speaker with functions independent in its effect on listener. Galati, Scherer & Ricci- Bitti [8] compared the ability of visually impaired individuals in producing voluntary face expressions of several emotions with that of sighted persons. Authors pointed out that there were almost no significant differences between blind and sighted participants with respect to the number and type of facial action units produced. the portrayal of the blind participants were significantly more poorly recognized by observers than were those of the sighted participants except for happiness. In the same context, a follow up study conducted by Iverson, Tencer & Golden – Meadow[9] where they investigated the relationship between speech and gestures among five congenitally blind and five sighted children, all were 18-24 months old. All children were video recorded during their engagement in playing activities. Result revealed that blind children produced some gestures during the one word stage; however, such gestures were less differentiation than similar ones produced by sighted children. In addition; results revealed that blind children used gestures for communication with objects closer to them while sighted children used gestures for communication with both near and far objects. Moreover, the study clarified that gestures play different functions for language learning by both blind and sighted children. Thus, gestures are original phenomenon in communication's early growth which appears even in the absence of visual model. Hand gestures used by eleven blind and sighted dyads, twelve sighted-sighted dyads, and eighteen blind - blind dyads were studied by [10] . Study's results showed that blind individuals used hand gestures in a limited manner, especially for emblems and illustrators. Melissa [11] revealed the difference in gestural activity between visually impaired and sighted individuals. whereas the visually impaired participants used limited dialogue gestures in comparison with the sighted participants. In another study conducted by Galati, Miceli & Sinnil [12] through which they attempted to investigate face expressions

of emotions of congenitally blind, and the possibility of investigating such expressions; moreover, to reveal whether facial expressions of congenitally blind children are developed along side with child's growth. In order to achieve these purposes, researchers video recorded ten congenitally blind children in one group, and ten sighted children in another group in seven different situations. Video was analyzed via facial Action Coding System (FACS). Results revealed that both groups were able to show their emotions through face expressions, however, some emotions were interacted with each other among the congenitally blind children. Moreover, results showed the absence of face expressions shortage among congenitally blind children through the study's duration.

Another study conducted by Iverson & Golden- Meadow [13] in an attempt to answer the following question: Why gestures accompany speech? They tested the following two hypotheses:

A- Individuals gesture because they saw other gestures, and learned from them how to move their hands while speaking; this hypothesis consistency was assured through spontaneous communication of children and adolescents with congenital blindness.

B- The second hypothesis argues that, speakers may gesture due to their belief that gestures are beneficial to listener. This hypothesis was tested through the assurance whether speakers gesture even when they speak with visually impaired individuals who do not benefit from meanings within gestures. Results revealed that speakers who are blind produced same gestures as those of sighted speakers. Moreover, blind speakers produced gestures even during interaction with other blind ones. However; Gelate, et al [14] pointed out in a study they conducted over ten congenitally blind children and another ten sighted children who were 8-11 years old, to a similarity in face expressions produced by both groups. Authors clarified that social feedback has an effect on sighted children behaviors, whereas these children hid their facial expressions that reflect negative emotions.

Magnusson [15] pointed out to four patterns of signs that blind adults who participated in the study had shown: back turning, speaker's role signs, listener's role signs and signs for role flexibility. In his study Roch – Levecq [16] attempted to investigate the production of primary emotions of congenitally blind children. in He employed twenty blind and twenty sighted children aged 4-12 years. Both groups were subjected to carry out certain tasks for the purpose of investigating their understanding to emotions and their ability to produce such emotions. Results revealed that blind children achieved lesser scores on false belief task; as well as

they did not express their emotions precisely as the sighted children. In their attempt to investigate the body language of blind adults, Magnusson and Karlson [17] conducted video-recorded interviews with five congenitally blind persons, and two persons with acquired blindness and another two sighted persons. Results of video-recorded analysis revealed the blind limited experience of abstracts and symbolic body expressions.

From reviewing previously mentioned studies, it has been observed that these studies discussed non-verbal communication of visually impaired individuals in general and congenitally blind in particular. Results of these studies revealed that both blind and low vision use body language and face expressions of emotions when communicating with sighted and non- sighted as well. The same can be said about the sighted individuals who also use non-verbal communication patterns when communicate with visually impaired. It has been revealed that body language produced by visually impaired are less differentiated, whereas gestures are limited, and face expression of emotions are less detailed in comparison with sighted individuals, in addition to their limited ability to accommodate their gestures and emotions to be appropriate in accordance with social reactions.

According to the aforementioned, and researcher's perception of non-verbal communication importance and its impact on the life of visually impaired and their ability to participate actively in different social occasions; present study has been conducted in an attempt to investigate the ability of visually impaired individuals to produce non-verbal communication patterns and being influenced by chronological age, the age in which visual impairment had occurred, and the severity of visual impairment. In particular, present study attempted answering the following questions

- 1- Does the production of non-verbal communication patterns by visually impaired participants differ with age category difference?
- 2- Does the production of non-verbal communication patterns by visually impaired participants differ with the difference of age in which visual impairment occurred?
- 3- Does the production of non-verbal communication patterns by visually impaired participants differ with visual impairment severity difference?

## METHODS

### Participants and sittings

Educational institutes: four educational institutions, geographically distributed over different districts in the capital city of Amman –Jordan participated in the study:

- 1- Al Diya charity society for visually impaired. This charity society provides early intervention services to visually impaired children from birth to five years old.
- 2- Abdullah Ibn umm Maktum elementary school for visually impaired. It provides educational services to visually impaired students aged 6-12 years.
- 3- The secondary school for visually impaired student. The school provides services to visually impaired students aged 13-18 years.
- 4- The Saudi centre for training and rehabilitating visually impaired females who are older than 17 years of age.

**Parents and teachers**

94 participants of parents and teachers (51 parents and 43 teachers) responded to non-verbal communication patterns scale. Their distribution differs in accordance with age category they deal with. (see Table 1). They have been

chosen for the purpose of investigating visually impaired individuals' production of non-verbal communication patterns from their point of view.

**Visually impaired students**

Researcher has obtained parents written consent to video-record (36) visually impaired students who were between 3-26 years old, (see Table 2), in order to investigate their non-verbal communication patterns production according to age in which visual impairment occurred variable (congenital, acquired) and visual impairment severity variable (low vision, blindness).

**Design:**

In order to examine the study's problem, a descriptive design included a survey tool in addition to video-recorded sessions analysis was used.

**Table 1**  
**Distribution of participating parents and teachers according to age category they deal with (N=94)**

| Participants | Age category | No. | Participants | Age category | No. |
|--------------|--------------|-----|--------------|--------------|-----|
| Parents      | 3-5          | 10  | Teachers     | 3-5          | 8   |
|              | 6-12         | 13  |              | 6-12         | 11  |
|              | 13-18        | 16  |              | 13-18        | 14  |
|              | 19-26        | 12  |              | 19-26        | 10  |
|              | Total        | 51  |              | Total        | 43  |

**Table 2**  
**Demographic characteristic of visually impaired participants (N=34)**

| Age categories | Number of participants | Gender |        | Visual Status |            | Onset of VI |          |
|----------------|------------------------|--------|--------|---------------|------------|-------------|----------|
|                |                        | male   | Female | Blind         | Low Vision | Congenital  | Acquired |
| 3-5            | 6                      | 3      | 3      | 3             | 3          | 4           | 2        |
| 6-12           | 10                     | 5      | 5      | 3             | 7          | 7           | 3        |
| 13-18          | 10                     | 5      | 5      | 7             | 3          | 6           | 4        |
| 19-26          | 10                     | 0      | 10     | 6             | 4          | 8           | 2        |
| Total          | 36                     | 13     | 23     | 21            | 15         | 25          | 11       |

VI: Visual Impairment

**Instrumentation**

Researcher employed two types of instruments in order to collect data relevant to non-verbal communication patterns among visually impaired participants:

A- Non-verbal communication patterns scale: Researcher developed a scale for non-verbal communication patterns consists of two parts: The first part includes the following demographic variables: 1. the relationship between the visually impaired student and the respondent (parent, teacher), this variable has been considered to determine the number of participating parents and teachers. 2. Age category which parent or teacher deal with :( 3-5), (6-12), (13-18) and (19-26) years. While the Second part consists

of (50) items distributed over three domains: Body language (24 items), Para language (13 items), and face expressions of emotions (13 items). Scale items were articulated in accordance with relevant literature reviewed such as: Galati & Scherer[8], Iverson & Golden – Meadow[13]; Preisler [18], Iverson, et al [9] , and Galati et al [14], Likert- type scale with five levels was used. Each item's response ranged from always to never.

In order to achieve the scale's face validity, the initial draft was submitted to a panel of six raters from the University of Jordan faculty members in Counseling and Special Education Department. Raters committee expressed some remarks mostly focused on rephrasing some items. Their remarks were taken into consideration and necessary

corrections were implemented. Consequently, the scale became clearer and more consistent. As well as, correlation coefficients among items and domains were computed. Items which their correlation coefficient value was between 40- 70% and more were considered, while items with correlation value less than 40% were dropped. Scale reliability was assured via Cronbach alpha which resulted in a value of 0,943. Thus the scale in its final version consisted of (50) items.

#### B- Observation instruments

Researcher developed four observation forms to monitor non- verbal communication patterns of visually impaired participants (n= 36). Each form consists of two parts: first part of each form includes the preliminary data: Chronological age, visual impairment severity (low vision, blindness) and age in which visual impairment had occurred (congenital, acquired). Researcher completed information relevant to part one prior to recording video sessions. The second part of the observation form consists of one of the following non -verbal communication patterns:

- 1- Face expressions: Smiling, interest, enquiry
  - 2- Tone of the voice: Enquiry, role regulation, agrees or disagrees.
  - 3- Movement of the body: Entire or partial body movement, body movement towards sound source.
  - 4- Hand gestures: Role regulation, emblems, illustrations.
- The second part of each observation form was completed by two neutral raters in light of their watching of video recorded sessions that belong to visually impaired participants (see video recording procedures)

### PROCEDURES

#### Instrument administration

The non - verbal communication patterns scale distributed to participants of parents and teachers (n=94) through educational institutions involved in the study. Respondents distributed as follow:

- 1- Al Diya charity society for visually impaired: from this institution; the researcher obtained (18) responses about non-verbal communication patterns produced by children who were 3-5 years old.
- 2- Abdullah Ibn umm Maktoum elementary school for visually impaired; researcher obtained (24) responses from parents and teachers according to their observation of non - verbal communication patterns of visually impaired children who were 6-12 years old.
- 3- Secondary school for visually impaired; researcher obtained (30) responses from parents and teachers who responded to

non-verbal communication patterns scale in light of their observation for visually impaired students aged 13-18 year.

- 4- Saudi center for training and rehabilitating visually impaired young women; 22 parents and teachers responded to non- verbal communication pattern scale in accordance with their observations to visually impaired female students aged 19-26 year.

#### Video recording

36 visually impaired students were subjected to be video recorded. Discussion topics initiated in accordance with the participating age categories, as follow:

- 1- 3-5 age category: Six visually impaired children participated in this video-recording session. During which; class-room teacher read two children stories to them. Teacher asked and commented in an attempt to elicit children's responses. This session lasted half an hour.
- 2- 6-12 age categories: This age category consisted of ten visually impaired students. Researcher conducted a discussion session with them about "future career" Researcher was keen in managing the discussion while asking questions with various commentary in a way that attracted greater participation through non- verbal communication patterns. The session lasted 45 minutes and video recorded.
- 3- 13-18 age categories: This age group consisted of ten visually impaired student. Researcher conducted a conversation session about" electronic information sources and its role in education enhancement". Through this session thoughts and ideas were exchanged between researcher and students and among students themselves. Students were video recorded for fifty minutes.
- 4- 19-26 age categories: This age group consisted of ten visually impaired female students. Researcher had a dialogue session with them about "the Jordanian Act on the right of persons with disabilities, 31/2007". Researcher was diligent in dialogue management and role organization in a way that allowed the use of non- verbal communication patterns as much as possible. This session lasted for one hour in which participants were video recorded in order to monitor their non- verbal communication patterns.

#### Data analysis

##### Parent and teacher responses analysis:

Preliminary data that resulted from participant responses was subjected to analysis via Statistical Package for the Social Science (SPSS). Means and standard deviations were computed. ANOVA was used along with post hoc Schaffe's test for data analysis and to reveal whether there are statistically significant differences in the production of non-

verbal communication patterns attributed to chronological age variable.

**Video recording analysis and observation forms coding:**

Copies of video recorded sessions accompanied with observation forms were distributed to two neutral raters. Coding mechanism for non- verbal communication patterns which may be observed during video watching were explained to them. In addition, this mechanism consists of having the rater put (x) mark in the square which matches the most represented communication pattern of non- verbal communication behaviors that are coming from the participants in accordance with domains in the observation forms. Video watching duration was limited to half an hour regardless of its actual duration. Means, standard deviations and the values of Pearson correlation coefficient between raters agreement for non- verbal communication patterns were all calculated.

Correlation coefficient's values ranged between 0.792 for voice tone domain, to 0.960 for gestures domain. After achieving satisfying correlation coefficients; frequencies for each pattern of non- verbal communication patterns listed in observation form were calculated along with its means by relying on two variables: the age in which visual

impairment had occurred (congenital, acquired) and severity of visual impairment (blindness, low vision).

**RESULTS**

**Result of parent and teacher responses**

As it is shown in table 3, ANOVA results revealed the presence of statistically significant differences in the production of non- verbal communication patterns due to chronological age variable on face expression of emotions, and Para language sounds. Whereas F calculated value Fcv for both domains was 4.34 and 6.37 consecutively. While the differences were not statistically significant for body language domain.

Post hoc schaffe test's results revealed that differences related to face Expression of emotions were statistically significant between the two age categories (3-5) and (6-12) in favor of the second category, And between the two age categories (3-5) and (19-26) in favor of the second category. In regard to Para language sounds, difference were statistically significant between age categories (3-5) and (13-18) in favor of the second category, while differences on the sum were statistically significant between categories (3-5) ,(13-18) and (6-12) years in favor of the two larger categories as it is shown in table 4.

**Table 3**

**Table 3. ANOVA results of parent and teacher responses on non- verbal commutation patterns scale according to chronological age variable**

| Communication patterns             | source of variation | SS    | Df | MS    | F     | sig   |
|------------------------------------|---------------------|-------|----|-------|-------|-------|
|                                    | Between groups      | 2.26  | 3  | 0.75  | 1.72  | 0.169 |
| <b>Body language</b>               | Within groups       | 39.55 | 90 | 0.44  | 1.72  | 0.169 |
|                                    | Sum                 | 41.81 | 93 |       | 1.72  | 0.169 |
| <b>Face expression of emotions</b> | between groups      | 6.52  | 3  | 2.17  | 40.38 | 0.004 |
|                                    | Within groups       | 40.38 | 90 | 0.45  | 40.38 | 0.004 |
|                                    | Sum                 | 46.90 | 93 |       | 40.38 | 0.004 |
| <b>Para language Sounds</b>        | Between groups      | 2.68  | 3  | 8.04  | 6.37  | 0.001 |
|                                    | Within groups       | 0.42  | 90 | 37.88 | 6.37  | 0.001 |
|                                    | Sum                 | 45.93 | 93 |       | 6.37  | 0.001 |
| <b>Over all</b>                    | Between groups      | 1.69  | 3  | 5.07  | 5.24  | 0.002 |
|                                    | Within groups       | 0.32  | 90 | 29.03 | 5.24  | 0.002 |

Statistically significant difference at  $p \geq 0.05$

**Table 4**  
**Schaffe’s results to determine age category with effect on non-verbal communication patterns among visually impaired participants**

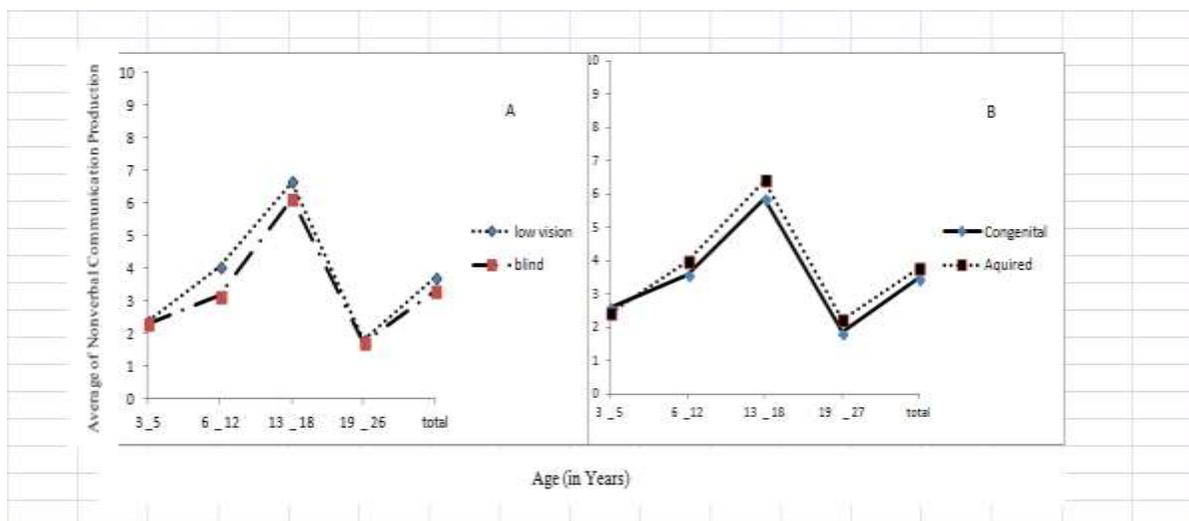
| Communication pattern               | Mean | Age   | 6-12 yr. | 13-18 Yr. | 19-26 Yr. |
|-------------------------------------|------|-------|----------|-----------|-----------|
| <b>Face expressions of emotions</b> | 2.98 | 3-5   | *0.74-   | 0.55-     | 0.66-*    |
|                                     | 3.72 | 6-12  |          | 0.19      | 0.08      |
|                                     | 3.53 | 13-18 |          |           | 0.11-     |
|                                     | 3.64 | 19-26 |          |           |           |
| <b>Para language Sounds</b>         | 3.19 | 3-5   | *0.86-   | *0.64-    | 0.50-     |
|                                     | 4.05 | 6-12  |          | 0.22      | 0.36      |
|                                     | 3.83 | 13-18 |          |           | 0.14      |
|                                     | 3.69 | 19-26 |          |           |           |
| <b>Overall mean</b>                 | 3.01 | 3-5   | *0.69-   | *0.50-    | 0.47-     |
|                                     | 3.70 | 6-12  |          | 0.19      | 0.22      |
|                                     | 3.51 | 18-13 |          |           | 0.03      |
|                                     | 3.48 | 19-26 |          |           |           |

Significant at  $p \geq 0.05$

Means of visually impaired participants’ production of non-verbal communication patterns in light of rater’s agreement.

The overall mean of low vision participants is 3.716, while the same value for blind participants reached up to 3.31. it's evident in these two means the presence of differences in the production of non-verbal communication patterns due to visual impairment severity in favor of low vision participants (See figure 1-A). The overall mean of

visually impaired student production of non-verbal communication patterns differed due to the age in which visual impairment had occurred, its value for blind students was 3.49. While its value for students with acquired visual impairment attained 3,775. It is evident in these two means the presence of differences in the means of non-verbal communication patterns due to the age in which visual impairment had occurred variable in favor of students with acquired visual impairment. See figure 1.B



**Figure. 1 A.B. Means of visually impaired participants' production of non-verbal communication patterns according to visual impairment severity and the age in which visual impairment occurred.**

### FINDINGS DISCUSSION

Results revealed the visually impaired individuals use of non-verbal communication patterns differently. Parent and teacher responses analysis showed that, there are no statistically significant differences in visually impaired production of body language due to age category variable. While there are statistically significant differences in the face expressions of emotions and Para language sounds domains. By reviewing table (4) it can be noticed that 6-12 age category had the most production of face expressions of emotions and para language sounds, in turn, the age category 3-5 had the least production of face expression of emotions and Para language sounds. In regard to the two age categories 13-18 and 19-26; they came to be in the middle of the previous two age categories in their non-verbal communication patterns production, whereas, age category of 13-18 occupied the second rank with overall mean of 3.51 while 19-26 age category came in third rank with overall mean 3.48.

In addition, it is noticed from the same table the consistency of parent and teacher responses which reflected the visually impaired production of non-verbal communication patterns according to age category variable except for the two categories of 13-18 and 19-26 whereas the later had more face expression of emotions production, but the preference has existed in favor of 13-18 years age category in the overall score.

Moreover, the visually impaired production of non-verbal communication patterns differed according to visual impairment severity (low vision, blindness) and the age in which visual impairment had occurred (congenital, acquired). Observation results revealed the superiority of low vision participants in the non-verbal communication patterns production over their blind counterparts. Whereas, the production means of low vision participants of non-verbal communication patterns was 3.716, while this mean was 3.319 for the blind. The results harmony at the level of different age groups has been noticed. Whereas, low vision participant had the most non-verbal communication patterns production. This result is repeated in favor of the participants with acquired visual impairment, whereas, they had the most non-verbal communication patterns production with overall mean of 3.775 versus 3.49 for the congenitally blind. This difference remained at the various age categories level. By reviewing figure 1- A&B non-verbal communication patterns production shortcomings by the age categories 3-5 and 19-26 can be noticed. Whereas, 3-5 age category is the

least in non-verbal communication patterns production, followed by 19-26 age category while 13-18 age category is the most in non-verbal communication patterns production followed by 6-12 age category.

In conducting a quick comparison among the survey tool's results and video analysis results a kind of congruence can be noticed by (3-5) and (19-26) age categories in their results. Whereas, first age category was the least in the production of non-verbal communication patterns, ever, while the (19-26) age category came in the third place in production wise; in regard to the (6-12) and (13-18) age categories, they relatively sustained their positions. According to the survey tool's result (6-12) age category was the most production in non-verbal communication patterns, while (13-18) age category has the most production in non-verbal communication patterns according to video analysis results.

Generally, in-light of these results, it can be said that visually impaired participants who are in 6-18 years age category have the most of non-verbal communication patterns production. Their production, in this regard, has been influenced by chronological age, the age in which visual impairment had occurred and visual impairment severity variables. even if this study has investigated a developmental domain represented in non-verbal communication patterns by visually impaired who are between 3-26 years old, however, it revealed the presence of a certain developmental course of non-verbal communication patterns with the study's participants. This course can be represented graphically. whereas non-verbal communication patterns start limited until the age of five years, then reach their peak between the age of six and eighteen years. However, they become limited again after the age of seventeen. It is very difficult to generalize this inference; rather it is restricted over the study's participants only. Its generalization requires supportive and relevant literature.

### limitations and orientation for future studies

This study has investigated the non-verbal communication phenomenon among visually impaired individuals depending on parent and teacher self-reports and observing non-verbal communication behaviors of visually impaired through video recorded sessions. Parent and teacher were chosen in accordance with the available sample. While the selection of visually impaired students was conditioned by a written consent of students' parent or caregiver. In both cases, it is difficult to generalize the study's results over the larger visually impaired population. Furthermore, researcher,

in his analysis of video recorded sessions relied on less advanced technological approaches in determining the non-verbal communication patterns. These patterns expression were restricted to an initial means.

This study provides a preliminary evidence on the ability of visually impaired to produce non-verbal communication patterns. Consequently, the study's results do not cross over or exceed this framework. Thus, it did not measure accurately the non-verbal communication patterns. It did not deeply investigate, for instance, the unique features of face expressions and their differentiations nor the extent of appropriateness of what the visually impaired use of body language and para language sounds for social context; and the extent of their congruence with what the sighted people use in the same contexts. Consequently, researcher recommends further studies at the Arabian world level. These studies should be characterized by being more precise, thus, it can deal with singular non-verbal communication patterns (e.g. Face expressions) and specify accurately their influence on social communication and interaction, and the returns of that on personal and adaptive structure of visually impaired individual.

#### CONCLUSION

The aim of this study is represented by revealing the non-verbal communication patterns of the visually impaired and their production of such patterns. Furthermore, the extent of being influenced by chronological age, the age in which visual impairment had occurred and the visual impairment severity variables through a survey tool that parents and teachers responded to, and observation instruments relied upon video recording analysis. The study's result has shown the ability of study's participants to produce non-verbal communication patterns along with their differences according to its variables.

Researcher hopes that, this study will be as a foundation on which other researchers and interested ones may rely upon and build over, while it redirects their attention to the non-verbal communication patterns importance in the life of disabled people in general, and visually impaired in particular in the time when parents, teachers and researchers focus their attention on verbal communication and nothing else; moreover, to seriously think of the feasibility of preparing relevant programs and include such programs within the Expanded Core Curriculum (ECC).

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