
PROSPECTIVE SPECIAL EDUCATION TEACHERS PERCEPTION ABOUT LEARNING BRAILLE AT HIGHER EDUCATION LEVEL: A QUANTITATIVE INVESTIGATION

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ABSTRACT

Braille learning is significant for those who are eager to teach visually impaired students at school level. It is obligatory for special education teachers that are prospective at higher education level to learn Braille for job eligibility for teaching visually impaired students. This study intended to seek the perception of special education teachers that are prospective regarding learning Braille. This study was quantitative and descriptive. The population of the study was the prospective special education teachers at higher education level. The sample of study were special education teachers that are prospective (N = 110). Purposive sampling technique was used to collect data for this study. A self-developed questionnaire was used as an instrument for data collection. Questionnaire's validity was confirmed through the experts opinion (N=03). Reliability of the questionnaire was confirmed through Cronbach alpha. The data was analyzed through descriptive & inferential statistics with SPSS. The major findings of the study revealed that Braille learning consumes more & more time. Additionally, Braille reading in grade two is more difficult than Braille writing in grade two & prospective teachers face difficulty in learning Braille

due to unavailability of braille instructors in their respective universities. It was recommended that prospective special education teachers must be provided with standardized Braille learning proficiency by their colleges and universities. Additionally, public & private universities offering special education degree programmes should appoint proficient Braille instructors for instructing Braille to prospective teachers.

KEYWORDS

Perception, prospective teachers, Higher education, Braille, Teaching

INTRODUCTION

The letters of the print alphabet are represented by raised dots in the Braille reading and writing method. (Chakma, 2020) The Braille writing system includes symbols for computer notation, foreign languages, music, math, and characters (Perkins School for the blind, 2018). For nearly 133 of the world's languages, different combinations of numbers, letters, and punctuation symbols are used (UNESCO, 2013). Braille formation can be classified as contracted or un-contracted. Touch sensitivity is necessary for reading Braille with the fingertips. (Miller, 2017). The most crucial component of the "Visual Impairment" Area of Specialization in undergraduate special education programmes is braille reading in order to assist students with visual impairment. Braille is regarded as a tool that works well for both reading and writing. To maintain continuous touch and keep track of the rest of the paper, it is crucial to have good motor coordination and finger sensitivity in addition to cognitive abilities and fundamental concepts (Willings, 2017).

There are numerous mythologies about learning Braille, like it takes a long time to write & read, that it has been substituted by software of speech recognition, that it is problematic to comply & use with Braille at institutes like school universities etc. and perhaps braille it is not a language. (Whittle, 2017). Therefore, the purpose of this study is to know the perception of future's teachers who study at higher education level and learning Braille to get eligibility for teaching students with visual impairment at school level.

LITERATURE REVIEW

This study is important in that it examines the goals and generates knowledge on learning Braille for prospective special education teachers at higher educational level. In comparison to the traditional method of learning Braille, this study helps prospective special education teachers understand enough about the requirements of Braille learning. The study also provides details on the requirements for learning Braille & becoming special education teacher in the field of visual impairment. The problems that special education degree programme students face when learning Braille during

and after their degree programmes are greatly abridged by the findings of this study which makes it challenging for them to learn. This study is vital because it will help Braille teachers well understand these problems & challenges and try to address them by adhering to the guiding principle for teaching Braille to degree-seeking students.

In the framework of education, Learning is very important. Some peoples (i.e., low visions or blind) do not have easy accessibility to print objects, this process of learning information requires extra effort and space. There is no one-size-fits-all approach to learning Braille. The flow of liquid over the page reflects a good read of Braille. Compounding posture with touch and local functions is a problem for new Braille learners, who might become confused by placing their hands in losing their place & same stroke. (McCall & McLinden 2011). Braille readers tend to read by their both hands, start the line firstly with the left hand help and finish by right hand (Whittle, 2017). In a study linking the rate of reading (speed) of completely blind people with “reading literacy rate ranges from oral reading 30% to silent reading 60% faster than the reading rate of Braille for various learning activities” (Knowlton, Wetzel, 2000). By experience, understanding and training, many students with visual impairment can overwhelmed this problem. Teaching methods & strategies have been recognized that can upsurge the learning levels of visually impaired students. Based on the literature existing, it is easily comprehensible that one to two hours daily instruction is essential for developing reading skills of Braille (Koenig, Corn, 2002).

The Braille Literacy Curriculum (BLC) (Wormsley, 2009), promoted the framework of to provide a “Braille-rich” environment for first-time students & teachers including the installation of Braille at a student's point of view, such as visually impaired and printable students. Braille codes are challenging when students use contracted Braille and student perspective, learning Braille is a fun period. Technology has donated to short-range access to information (Penava et al., 2017). Finally, Braille requires non-available or expensive tools such as Braille Sense Polaris, slate and stylus and Perkins Brailler. (Spungin, 2012). Teachers' attitude toward Braille can be improved through training programs, either before or in the ministry. (Nadeem et al., 2015). Likewise, enthusiasm skills are important for Braille learning and teachers should be aware of skills to help visually impaired students and students with and learning disabilities to read and write the Braille. (Njue et al., 2012).

Clark-Bischke and Stoner in 2009 looked at samples of 20 Braille students in the United States who were nearing the end of their studies, starting with those who did not have any other visual impairments. Five kids utilized non-controversial Braille and fifteen used contracted Braille. According to research, pupils' spelling skills are comparable to those they observe. Mistake analysis was employed to clarify spelling error trends and guide a number of well-written words in the exam. There were

distinctions made between spelling mistakes caused by unreadable Braille faults such as missing dots and cell changes and spelling problems not caused by Braille errors.

RESEARCH OBJECTIVES

1. Determine future special education teachers' perceptions about Braille at a higher school level.
2. Identify the difficulties faced in learning Braille by special education teachers that are prospective at higher education level.
3. Find the efforts delineate by special education teachers that are prospective while learning Braille at higher education level.

RESEACH QUESTIONS

1. What are future special education teachers' perceptions about Braille at a higher school level?
2. What are the difficulties faced in learning Braille by special education teachers that are prospective at higher education level?
3. What are the efforts delineate by special education teachers that are prospective while learning Braille at higher education level?

RESEARCH METHODOLOGY

Descriptive research design was adopted for this study. The population were the special education teachers that are prospective at higher education level. The Sample of the study included special education teachers that are prospective from higher education level (N = 110) including Male = 53, Females= 57). The total Sample (N= 110) included visually impaired (N= 49) and sighted (N= 61) from higher education level. 17 years to 30 years were the age ranges. Purposive sampling technique was used to gather data. Self-developed questionnaire was used as an instrument for data gathering. Validity of questionnaire was confirmed through the opinions of experts (N=03). Reliability of the instrument was confirmed through Cronbach alpha. In the instrument, first part consists of demographic information such as qualification, age and gender. Second part consisted of 18 statements, and response options were (Strongly Agree= 5, Agree= 4, Neutral= 3, Disagree= 2 & Strongly Disagree= 1). Before starting the data gathering process, permission to collect data was obtained from the respondents as a part of ethical consideration and they were informed about the topic of the research as well. The quantitative data from the respondents were analyzed using SPSS version 21 with inferential & descriptive statistics. Data were converted to numeric results through quantitative analysis into percentage and were presented in tabulated form.

DATA ANALYSIS

Content analysis was done with descriptive & inferential statistics. The mean value

was found of overall data. Then, T-Test was applied on the demographic information of the respondents and Analysis of Variance (ANOVA) Test was applied on the data collected through respondents i.e., qualification etc. Percentage of the responses has been analyzed to know the perception of special education teachers that are prospective about Braille learning at higher education level that is following:

Table 1: T-Test of Gender of the respondents

Gender	N	Mean	Std. Deviation	T
Male	53	51.92	10.27	-15.195*
Female	57	93.36	17.20	

Sig. α -0.00*

Table 1 indicates that there were 53 respondents (male) and 57 respondents (female). Therefore, maximum respondents were females. Independent t-test result showed that there was a significant difference ($t=-15.195^*$) in males & female respondents about the perception of braille in the field of visual impairment.

Table 2: T-Test of Disability of the respondents

Disability	N	Mean	Std. Deviation	T
Sighted	49	50.30	9.50	-14.581*
Blind	61	91.62	17.90	

Sig. α -0.00*

Table 2 indicates that 49 respondents were blind enrolled at special education degree program and 61 respondents were sighted enrolled in special education degree program at higher education level. Therefore, maximum respondents were sighted. Independent t-test result showed that there was a significant difference ($t=-14.581^*$) in sighted & blind respondents about the perception of braille in the field of visual impairment.

Table 3: ANOVA Test of Qualification of the respondents

Qualification	N	Mean	Std. Deviation	F
BA/BSC/BS	42	100.04	14.95	162.59
MA/MS	60	59.35	11.68	
M-PHIL/MS	8	36.37	3.54	
Total	110	73.21	25.33	

Sig. α -0.00*

Table 3 indicates that 42 respondents were belong to BA/BSC/BS, 60 respondents were belong to MA/MS and 8 respondents were belong to M-PHIL/MS. Therefore, maximum respondents were belong to MA/MS. ANOVA test showed that there was a significant difference ($F=162.59$) in the qualifications of prospective special education teachers at higher education level.

Table 4: Frequency distribution of responses regarding Braille is not an important learning medium for prospective teachers at college or university level.

Responses	Frequency	Percent
Strongly Disagree	38	34.5
Disagree	29	26.4
Neutral	15	13.6
Agree	18	16.4
Strongly Agree	10	9.1
Total	110	100.0

Table 4 indicates that there were 38 (34.5%) respondents agreed, while 10 (9.1%) were strongly agreed, 15 (13.6%) were Neutral, 29 (26.45%) were disagreed, and 18 (16.4%) were strongly disagreed on the above statement. Therefore, maximum number of respondents were not agreed to the above statement.

Table 5: Frequency distribution of responses regarding I am conscious about methods and materials for learning Braille, taught at my college/university.

Responses	Frequency	Percent
Strongly Agree	34	30.9
Agree	44	40.0
Neutral	19	17.3
Disagree	9	8.2
Strongly Disagree	4	3.6
Total	110	100.0

Table 5 indicates that there were 44 (40.0%) respondents agreed on the above statement, while 34 (30.9%) were strongly agreed, 19 (17.3%) were Neutral, 9 (8.2%) were disagreed, and 4 (3.6%) were strongly disagreed on the above statement. Therefore, maximum number of respondents were agreed to the above statement.

Table 6: Frequency distribution of responses regarding Braille learning consumes more and more time.

Responses	Frequency	Percent
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Neutral	17	15.5
Agree	58	52.7
Strongly Agree	35	31.8
Total	110	100.0

Table 6 indicates that there were 58 (52.7%) respondents agreed, while 35 (31.8%) were strongly agreed and 17 (15.5%) were Neutral on the above statement. Therefore, maximum number of respondents were agreed to the above statement.

Table 7: Frequency distribution of responses regarding Dots memorization is very easy for me.

Responses	Frequency	Percent
Strongly Agree	25	22.7
Agree	38	34.5
Neutral	25	22.7
Disagree	14	12.7
Strongly Disagree	8	7.3
Total	110	100.0

Table 7 indicates that there were 38 (34.5%) respondents agreed, while 25 (22.7%) were strongly agreed, 25 (22.7%) were neutral, 14 (12.7%) were disagreed, and 8 (7.3%) were strongly disagreed on the above statement. Therefore, maximum number of respondents were agreed to the above statement.

Table 8: Frequency distribution of responses regarding the teachers are very cooperative during teaching and learning process of learning Braille.

Responses	Frequency	Percent
Strongly Agree	28	25.5
Agree	51	46.4
Neutral	16	14.5
Disagree	12	10.9
Strongly Disagree	3	2.7
Total	110	100.0

Table 8 indicates that there were 51 (46.4%) respondents agreed, while 28 (25.5%) were strongly agreed, 16 (14.5%) were neutral, 12 (10.9%) were disagreed, and 3 (2.7%) were strongly disagreed on the above statement. Therefore, maximum number of respondents were agreed to the above statement.

Table 9: Frequency distribution of responses regarding The Learning tenure of Braille for prospective teachers is limited in my college/university.

Responses	Frequency	Percent
Strongly Agree	10	9.1
Agree	53	48.2
Neutral	24	21.8
Disagree	19	17.3
Strongly Disagree	4	3.6
Total	110	100.0

Table 9 indicates that there were 53 (48.2%) respondents agreed, while 10 (9.1%) were strongly agreed, 24 (21.8%) were Neutral, 19 (17.3%) were disagreed, and 4 (3.6%) were strongly disagreed on the above statement. Therefore, maximum number of respondents were agreed to the above statement.

Table 10: Frequency distribution of responses regarding Braille reading is more difficult than Braille writing for me.

Responses	Frequency	Percent
Strongly Agree	25	22.7
Agree	64	58.2
Neutral	15	13.6
Disagree	5	4.5
Strongly Disagree	1	.9
Total	110	100.0

Table 10 indicates that there were 64 (58.2%) respondents agreed, while 25 (22.7%) were strongly agreed, 15 (13.6%) were neutral, 5 (4.5%) were disagreed, and 1 (0.9%) were strongly disagreed on the above statement. Therefore, maximum number of respondents were agreed to the above statement.

Table 11: Frequency distribution of responses regarding Braille writing is more difficult for me than reading.

Responses	Frequency	Percent
Strongly Agree	2	1.8
Agree	35	31.8
Neutral	18	16.4
Disagree	40	36.4
Strongly Disagree	15	13.6
Total	110	100.0

Table 11 indicates that there were 40 (36.4%) respondents disagreed, while 15 (13.6%) were strongly disagreed, 18 (16.4%) were Neutral, 35 (31.8%) were agreed, and 2 (1.8%) were strongly agreed on the above statement. Therefore, maximum number of respondents were not agreed to the above statement.

Table 12: Frequency distribution of responses regarding Special Education Department needs to improve the syllabus of Braille course at Govt. Training College for Teachers of Blind Lahore.

Responses	Frequency	Percent
Strongly Agree	17	15.5
Agree	38	34.5
Neutral	31	28.2
Disagree	21	19.1
Strongly Disagree	3	2.7
Total	110	100.0

Table 12 indicates that there were 38 (34.5%) respondents agreed, while 17 (15.5%) were strongly agreed, 31 (28.2%) were Neutral, 21 (19.1%) were disagreed, and 3 (2.7%) respondents were strongly disagreed on the above statement. Therefore, maximum number of respondents were agreed to the above statement.

Table 13: Frequency distribution of responses regarding I prefer Grade 1 rather than learning of Grade 2 in Braille.

Responses	Frequency	Percent
Strongly Agree	27	24.5
Agree	46	41.8
Neutral	23	20.9
Disagree	8	7.3
Strongly Disagree	6	5.5
Total	110	100.0

Table 13 indicates that there were 46 (41.8%) respondents agreed, while 27 (24.5%) were strongly agreed, 23 (20.9%) were Neutral, 8 (7.3%) were disagreed, and 6 (5.5%) were strongly disagreed on the above statement. Therefore, maximum number of respondents were agreed to the above statement.

Table 14: Frequency distribution of responses regarding I prefer grade 2 of Braille rather than grade 1 of Braille.

Responses	Frequency	Percent
Strongly Agree	9	8.2

Agree	41	37.3
Neutral	37	33.6
Disagree	16	14.5
Strongly Disagree	7	6.4
Total	110	100.0

Table 14 indicates that there were 41 (37.3%) respondents agreed, while 9 (8.2%) were strongly agreed, 37 (33.6%) were Neutral, 16 (14.5%) were disagreed, and 7 (6.4%) were strongly disagreed on the above statement. Therefore, maximum number of respondents were agreed to the above statement.

Table 15: Frequency distribution of responses regarding Braille should be taught at educational institutes only by visually impaired teachers.

Responses	Frequency	Percent
Strongly Agree	9	8.2
Agree	37	33.6
Neutral	33	30.0
Disagree	25	22.7
Strongly Disagree	6	5.5
Total	110	100.0

Table 15 indicates that there were 37 (33.6%) respondents agreed, while 9 (8.2%) were strongly agreed, 33 (30.0%) were Neutral, 25 (22.7%) were disagreed, and 6 (5.5%) were strongly disagreed on the above statement. Therefore, maximum number of respondents were agreed to the above statement.

Table 16: Frequency distribution of responses regarding Braille should be taught at educational institutes only by sighted teachers.

Responses	Frequency	Percent
Strongly Agree	7	6.4
Agree	37	33.6
Neutral	33	30.0
Disagree	30	27.3
Strongly Disagree	3	2.7
Total	110	100.0

Table 16 indicates that there were 37 (33.6%) respondents agreed, while 7 (6.4%) were strongly agreed, 33 (30.0%) were Neutral, 30 (27.3%) were disagreed, and 3 (2.7%) were strongly disagreed on the above statement. Therefore, maximum number of respondents were agreed to the above statement.

Table 17: Frequency distribution of responses regarding Braille contractions affect the learners’ reading fluency, spelling and efficiency of hand movements when reading.

Responses	Frequency	Percent
Strongly Agree	18	16.4
Agree	52	47.3
Neutral	27	24.5
Disagree	12	10.9
Strongly Disagree	1	.9
Total	110	100.0

Table 17 indicates that there were 52 (47.3%) respondents agreed, while 18 (16.4%) were strongly agreed, 27 (24.5%) were Neutral, 12 (10.9%) were disagreed, and 1 (0.9%) were strongly disagreed on the above statement. Therefore, maximum number of respondents were agreed to the above statement.

Table 18: Frequency distribution of responses regarding I currently feel that prospective teachers face difficulty in learning Braille due to unavailability of braille instructors in their respective universities.

Responses	Frequency	Percent
Strongly Agree	25	22.7
Agree	64	58.2
Neutral	15	13.6
Disagree	5	4.5
Strongly Disagree	1	.9
Total	110	100.0

Table 18 indicates that there were 64 (58.2%) respondents agreed, while 25 (22.7%) were strongly agreed, 15 (13.6%) were neutral, 5 (4.5%) were disagreed, and 1 (0.9%) were strongly disagreed on the above statement. Therefore, maximum number of respondents were agreed to the above statement.

Table 19: Frequency distribution of responses regarding I currently feel that my ability to teach Braille is not satisfactory due to poor resources provided at my college/university.

Responses	Frequency	Percent
Strongly Disagree	3	2.7
Disagree	39	35.5
Neutral	23	20.9
Agree	35	31.8
Strongly Agree	10	9.1
Total	110	100.0

Table 19 indicates that there were 39 (35.5%) respondents disagreed, while 3 (2.7%) were strongly disagreed, 23 (20.9%) were Neutral, 35 (31.8%) were agreed, and 10 (9.1%) were strongly agreed on the above statement. Therefore, maximum number of respondents were not agreed to the above statement.

Table 20: *Frequency distribution of responses regarding Braille practice time is enough, provided at college/university.*

Responses	Frequency	Percent
Strongly Agree	4	3.6
Agree	52	47.3
Neutral	31	28.2
Disagree	15	13.6
Strongly Disagree	8	7.3
Total	110	100.0

Table 20 indicates that there were 52 (47.3%) respondents agreed, while 4 (3.6%) were strongly agreed, 31 (28.2%) were Neutral, 15 (13.6%) were disagreed, and 8 (7.3%) were strongly disagreed on the above statement. Therefore, maximum number of respondents were agreed to the above statement.

Table 21: *Frequency distribution of responses regarding Negative Perception of teachers that this student cannot learn Braille, discourages the student in learning Braille.*

Responses	Frequency	Percent
Strongly Agree	21	19.1
Agree	36	32.7
Neutral	20	18.2
Disagree	28	25.5
Strongly Disagree	5	4.5
Total	110	100.0

Table 21 indicates that there were 36 (32.7%) respondents agreed, while 21 (19.1%) were strongly agreed, 20 (18.2%) were Neutral, 28 (25.5%) were disagreed, and 5 (4.5%) were strongly disagreed on the above statement. Therefore, maximum number of respondents were agreed to the above statement.

FINDINGS

Independent t-test result revealed that there was a significant difference ($t=-15.195^*$) in males & female respondents about the perception of braille in the field of visual impairment at higher education level. Maximum respondents were females.

Independent t-test result revealed that there was a significant difference ($t=-14.581^*$) in sighted & blind respondents about the perception of braille in the field of visual impairment at higher education level. Maximum respondents were sighted future special education teachers.

ANOVA test revealed that there was a significant difference ($F=162.59$) in the qualifications of future special education teachers. Maximum respondents were belong to MA/MSC.

60.9% respondents were disagreed that Braille is not an important learning medium for prospective teachers at college or university level.

70.9% of respondents were agreed that they are conscious about methods and materials for learning Braille, taught at their college/university.

84.5% respondents were agreed that Braille learning consumes more and more time.

57.2% respondents were agreed that Dots memorization is very easy for them.

71.9% respondents were agreed that the teachers are very cooperative during teaching and learning process of learning Braille.

57.3% respondents were agreed that the Learning tenure of Braille for prospective teachers is limited in their college/university.

80.9% respondents were agreed that Braille reading is more difficult than Braille writing for them.

50% respondents were disagreed that Braille writing is more difficult for them than reading.

50% respondents were agreed that Special Education Department needs to improve the syllabus of Braille course at Govt. Training College for Teachers of Blind Lahore.

66.3% respondents were agreed that they prefer Grade 1 rather than learning of Grade 2 in Braille.

45.5% respondents were agreed that they prefer grade 2 of Braille rather than grade 1 of Braille.

42.8% respondents were agreed that Braille learning should be taught at educational institutes only by visually impaired teachers.

40% respondents were agreed that Braille learning should be taught at educational institutes only by sighted teachers.

63.7% respondents were agreed that Braille contractions affect the learners' reading

fluency, spelling and efficiency of hand movements when reading.

80.9% respondents were not agreed that prospective teachers face difficulty in learning Braille due to unavailability of braille instructors in their respective universities.

40.9% respondents were not agreed that they currently feel that their ability to teach Braille is not satisfactory due to poor resources provided at their college/university.

50.9% respondents were agreed that Braille practice time is enough, provided at college/university.

51.8% respondents were agreed that Negative Perception of teachers that this student cannot learn Braille, discourages the student in learning Braille.

DISCUSSIONS

The perception of prospective teachers about learning braille with regards to gender & qualification depicts the perceptions of special education teachers that are prospective at higher education level that can be either favorable or negative. Braille code comprehension (simple to comprehend), Suitable preparation in Braille as a communication skill, the capacity of prospective teachers to establish their own teaching techniques and to assist learning are all independent variables that may influence favorable opinions. Optimistic impression leads to improved Braille literateness among prospective teachers, nonetheless adverse perception leads to a decrease in Braille literateness (WaMunyi, 2017). Numerous challenges were faced by students such as challenges faced in haptic training, phonological training, misconceptions about braille, reading difficulties etc. Prospective teachers face difficulties in writing along reading grade 2, particularly with composite signs along contractions, which can be confusing at times, but with repetition, they improve. (Argyropoulos, 2019). There are many efforts delineate by them while learning Braille such as learning & complying the rules of tactile sensitivity drill, identifying & memorizing braille dots. Young individuals gradually developed a sense of mastery and acquired talents. Adults were hampered by a lack of time. (Heilbrunn, Woodin 2018).

The conclusion of the study discusses the perception of prospective teacher of higher education level about learning braille is equally positive & negative because braille requires more and more phase with an positive approach for learning. The rationale for doing so is to consider it a professional preparation assignment for work as a special education teacher in the field of vision impairment. There are several difficulties that future instructors face when learning, writing, and reading Braille. Misconceptions about braille and discouragement of Braille learners provide a barrier to Braille learners learning with fervor and zest. A study also shown that grade one of Braille is favored above grade two. Nonetheless, grade two reading and comprehension is required to satisfy the qualifying standards.

RECOMMENDATIONS

Prospective special education teachers must be provided with standardized Braille learning proficiency by their colleges and universities.

Public & private universities offering special education degree programmes should appoint proficient Braille instructors for instructing Braille to prospective teachers.

Prospective teachers of special education degree program should practice the Braille more and more to get competence. Interest based practice is recommended.

Braille Tests held by Directorate of Special Education Punjab should be taken two to three times in a year so that every prospective teacher will obtain a Braille proficiency certificate after sitting an exam administered by the Directorate of Special Education Punjab.

This study helps to find out insights of special education teachers that are prospective about their learning of braille for their future professional career. This study depicts the importance of braille learning for proficient future career preparation and highlights the significances of braille learning. It explores the difficulties & challenges confronted by special education teachers that are prospective in learning braille. The study is beneficial to know about the Braille literacy with challenges & the approaches, programs like phonological training & reading activities that a Braille instructor adopt & design to give a well Braille environment in which learners without or with visual impairment can easily learn Braille literacy and prepare their self to get an employment.

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