

The Effects of Three Formats of Assessment on the Achievement of Students with Hearing Disabilities

Mohd Hanafi Mohd Yasin^{1*}, Hasnah Toran¹, Ainul Azmin Mohd Zamin² and Lokman Tahir³

¹*Faculty of Education, Universiti Kebangsaan Malaysia, 43600 Bangi, Selangor, Malaysia*

²*Centre For Languages And Pre-university Academic Development, International Islamic University Malaysia, Jalan Gombak, 43100 Kuala Lumpur, Malaysia*

³*Faculty of Education, Universiti Teknologi Malaysia, 81310 Skudai, Johor, Malaysia*

ABSTRACT

The purpose of this paper is to present findings of a factorial-experimental study which investigated the effects of the additional time and examination format in minimizing the language gap faced by hearing impaired students when answering Malay Language question paper in the Primary School Assessment (UPSR). Three formats were tested in this study, namely, Ordinary Format, DEAS I Format and DEAS II Format. Thirty-six hearing impaired students who were in Form One from Seremban, Melaka and Muar were separated into three experimental groups with equal level of Malaysian Language. All the groups answered the comprehension and essay question in the Malaysian Language examination in the actual time and additional time simultaneously. Questionnaires (to teacher and students), interviews, and observation were also conducted. Results showed that for all the three formats, the subjects performed better in extra time than regular time. A comparison of the performance based on the formats revealed higher achievement in the comprehension and writing sections set in regular time and extra time for the subjects exposed to the DEAS II Format. Therefore, extra time and DEAS II Format are successful in minimizing the language gap between hearing impaired students and normal students in the examination. In more specific, the adaptive approach used in DEAS II Format enables a fair assessment of hearing impaired students' capabilities. Meanwhile, the findings from the questionnaires and interviews showed that both the teachers and students agreed that extra time and appropriate examination format could improve the achievements of hearing impaired students during the examination.

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E-mail addresses:

mhmy6365@yahoo.com (Mohd Hanafi Mohd Yasin),

hasna1@yahoo.com (Hasnah Toran),

ainul_azmin@iiu.edu.my (Ainul Azmin Mohd Zamin),

lokmanahir@gmail.com (Lokman Tahir)

* Corresponding author

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INTRODUCTION

Language difficulties are generally common among hearing impaired students and their language proficiencies are inferior compared to the normal children (Davies & Wavering, 1999; Chaleff & Toranzo, 2000; Siegel, 2000). This unparallel language difficulty is regarded as the language gap that a hearing impaired student has since birth. Studies have shown that hearing impaired and sign language are the factors effecting the communicative language and written language among hearing impaired students (Zulkifley, 1994; Thurlow *et al.*, 1998; Thurlow *et al.*, 1997). Some case studies of accommodations with students who are deaf-blind showed that there is variability in the accommodations allowed and also inconsistency in how they are implemented in classroom assessments (Horvath *et al.*, 2005).

The Malaysian Examination Syndicate (MES) has been reporting that the performance of the hearing impaired students in the Malay Language subject is below the expected standard. Malay Language is used as the medium of instruction in examination papers and thus, a fair assessment of hearing impaired students was unattainable. This is primarily because the hearing impaired factor was not eliminated or minimized prior to the examination. Hence, the results did not mirror the real performance of these students. This factor must be minimized or eliminated to reflect their real achievement

or performance in the examinations (Shaftel *et al.*, 2003; Thompson & Thurlow, 2002). Majority of hearing impaired students found difficulties in answering the questions because they failed to understand the instructions and tasks read from the printed question paper (Jarrow, 2001; Maihoff, 2000; Walker, 1996). Philips (1994) found that accommodation is one of the ways to overcome the obstacles caused by inability (or specifically, the inability experienced by those hearing impaired students causing them the difficulties in understanding information and eventually hindering them from showing their true potential in examinations) to heighten their performance and to display their true skills.

Students who are deaf or hard of hearing are a diverse group served in a wide range of educational settings (Gallaudet Research Institute [GRI], 2005). Silver *et al.* (1998) and Elliot *et al.* (2003) also shared the same opinion that adaptability commonly helps students with special need to heighten their real performance. Meanwhile, Vanherdein and Tobias (2000) found that any item constructed must be designed universally so that it fulfills the requirement of both the normal and special need people. Orkwis (1999) stated that universal design means an effective learning that creates an equal opportunity for everyone in any area. For example, adaptability provides an extra time during examination. Thurlow *et al.* (1997) mentioned that extra time provides more time during examination and longer intervals between the two periods of examinations, allows extra time according

to each student's needs and also enables different administrations for different sessions of examination will help reduce the language gap among the hearing impaired students.

The extra time allocated allows a fair assessment for students with special needs. In particular, it creates an opportunity for the students to perform without any disturbances from their impairment (Phillips, 1994; Elliot *et al.*, 1998). Geisinger (1994) found that the adaptability in administering the examination for the special-need students is meant to discover the real performance of the students in the examination that they are sitting for. This opinion is supported by McDonnell *et al.* (1997) who stated that there is a significant performance in the examination that employs adaptability.

In most cases, an extra time of 50 percent of the actual time allocated for an examination was sufficient for most students with special needs. Buchkoski (1999) stated that studies have shown that extra time is the best method to be employed for students with reading difficulties like the hearing impaired students. In fact, many studies have shown that in comparison with normal students, the score of children with special needs is statistically higher in examinations with extra time given (Elliot *et al.*, 2003; Jarrow, 2000; Buchkoski, 1999). The researchers also pointed out that despite the unlimited extra time given, none of the hearing impaired students utilized the extra given time during the examination (Jarrow, 2001; Buchkoski, 1999). Tindal and Fuchs (1999) repeatedly carried out studies at

colleges to observe the effectiveness of extra time for examinations, i.e. if achievements are significantly good. The objective of this paper was to identify the most effective and suitable examination format for hearing impaired students in Malaysia.

LITERATURE REVIEW

Cawthon and Wurtz (2008), Alster (1997), Centra (1986), Hill (1984) and Runyan (1991) stated that their findings on the performances of students with special needs in examinations with extra time are almost the same. Jarrow (2001), who is the President of Disability Access Information and Support (DAIS), is an expert in providing services for students with special needs and he stresses that it is imperative to provide the extra time for these students although not every student requires that extra time. The extra time is suitable especially for examination that requires a high level of language proficiency (Harker *et al.*, 1993; Tindal *et al.*, 1998; Jarrow, 2001; Martin, 2001; Mounty, 2001). Huesman *et al.* (2000) and Elliot *et al.* (2003) stated that on the average, special need students utilize a minimum amount of the extra time given. While the normal students use an extra of seven minutes, the special needs students only use the first 20 minutes of the extra time given. According to Cawthon and Wurtz (2008), Cawthon (2006) and Elliot *et al.* (2003), the extra time can lower the students' anxiety in relation to their performances, enable them to perform their best in examination and improve their motivation to complete the examination.

“Accommodations” refer to a range of changes to test administration and test content; they are designed to remove factors that penalize students because of their disability and also do not change the target skill of the assessment (Cawthon, 2006). The goal for accommodations is to make certain that the test measures content knowledge (target skill) and not the ability to take the test (access skill) (Elliott & Braden, 2000; Shriner & DeStefano, 2003). Thus, students with special needs in general will feel comfortable, more interested, highly motivated, less disappointed, and can perform better, as well as perceive the examination as less difficult and prefer to seat for examination with extra time given (Elliot *et al.*, 2003). Studies by Halla (1988) and Montani (1995) proved that students with poor academic performances had shown the same results as those normal students in examinations with extra time.

The use of common examination papers for both normal and special needs students was found to be unsuitable in many studies conducted around the world as language skills and proficiency are different between hearing impaired students and normal students (Johnson *et al.*, 2001; Courtin, 2000; British Hearing impaired Association, 1996; Abdullah, 1993; Allen 1986). This difference in language ability is termed as language gap. Based on this situation, the examination question paper for hearing impaired students should be made more language friendly and follow the Universal Design (UD) format to minimizing the language gap before the questions can

be answered by the hearing impaired candidates. The particular adaptation here refers to the various ways of minimizing the effects of deafness. Hearing impairment can be a negative factor in hindering students’ understanding of examination questions.

According to the Malaysian Examination Syndicate (MES) (2000), a student’s performance may vary according to different circumstances. This means any disruption that suddenly takes place may change the students’ results. For example, a sudden sound of noise during the examination can disrupt the student’s concentration. MES also gave other examples like illness, lethargy, emotional stress, anxiety and others. In addition, MES also emphasizes that the administrator conducting the examinations must prepare a conducive location for the examination and implement the right examination regulations. Therefore, the examination adaptability for the hearing impaired must be implemented to mirror the true performance of these students.

Sign language is the main medium of instruction while learning and communicating (Goh *et al.*, 1993; Abdullah, 2001, 2002; Martin, 2001; Jarrow, 2001; Mouny, 2001). Cawthon and Wurtz (2008) found that students in schools for the hearing impaired were more likely to use American Sign Language (88%), those in district/regional programmes used oral and sign language together (79%), and those in mainstream programmes used either oral only (67%) more than other communication modes. In Malaysia, most hearing impaired

students communicate using Malaysian Sign Language (MYSL) together with total communication. Generally, the use of a sign language at home and in school among hearing impaired students gives an impact on their lives, especially with aspects related to linguistics. Hence, this also will affect their performance in examination results. Under normal circumstances, hearing impaired students read and write in Malaysian Language but this creates a confusion during examination because the sign language has a different system with that of the Malaysian Language. As a result, hearing impaired students would produce Malay Language written works that consist of what is referred to as *deafness* problems by Myklebust (1964). The problems include wrong syntax structure, inaccurate use of words semantically, unnecessary use of affixes and unnecessary omission of words. These problems are caused by the interference from the sign language that is regarded as their first language (Goh *et al.*, 1993; Abdullah, 2001; Abdullah, 2002).

The findings of several other studies have shown that hearing impaired students' academic achievement is still below average. This is caused by their poor language proficiency (Powers, 1996; Gregory *et al.*, 1995; Kluwin, 1993; Abdullah, 1993). Other studies (Webster *et al.*, 1981; Wood *et al.*, 1996; Lewis, 1996; Powell, 1995; Harrison, Simpson & Stuart, 1992; Holden-Pitt, 1997; Courtin, 2000; Antia & Kreimeyer, 2001) have confirmed that language and writing ability among the hearing impaired students are different because of the interference from their sign language.

Apart from the language problem, the hearing impaired students also face other problems related to language. Among others are low motivation, unconfident in oneself, inferiority complex and low cognitive as a result of their hearing impaired (Yachnick, 1986; Powers, 1990; Cates, 1991; Maxon *et al.*, 1991; Kluwin & Stinson, 1993; Powers, 1996). These weaknesses are identified as parts of the factors that lead to the low performances of the hearing impaired students in classroom lessons and examinations. A suitable examination format for the hearing impaired students is highly required during examinations to overcome all the reasons mentioned earlier. Thus, the present study focuses on the performance of the Malay Language subject as this subject seems to show a significantly low performance among the hearing impaired students. This subject has also been excluded from the moderation programmes by MES (Lembaga Peperiksaan Malaysia, 2002).

An examination format that is both fair and suitable with the students' impaired ability is currently practiced in various developed countries (Davies & Wavering, 1999; Chaleff & Toranzo, 2000; Siegel, 2000). Accommodation used by these researchers to study the hearing impaired students' performance in examination has showed positive impact. On that basis, the same method can be applied to hearing impaired students in Malaysia. For instance, a study by Cawthon (2006) found that accommodations use were similar for both mathematics and reading, with the exception of two accommodations: read

aloud (test items are read to students) and signed question-response (test items are interpreted and the students respond in sign language). Specifically, average use of accommodations was higher in mainstreamed programmes for frequent breaks, individual administration, interpreter for directions, and read aloud. Within each school, accommodations were administered in more grade ranges in the mainstream settings than in schools for the deaf or district-wide/school programmes (Cawthon, 2006). Most models allow hearing impaired students to take examination using their first language which is the sign language. The same mechanism can be applied here. They should use Malaysian Sign Language (MySL) during examinations. MySL is the standard language used to ease communication more effectively among deaf people in Malaysia (Goh & Teh, 1993; Abdullah, 1994).

Due to low language proficiency and unsuitable language format, it is not surprising that hearing impaired students are always left behind in academics (Moores & Sweet, 1990; Harris & Beech, 1992; Kluwin & Gaustad, 1992; O'Donnell *et al.*, 1992; Holt, 1993; Kluwin, 1993). Research findings also showed that hearing impaired students face problems in writing skills. In other words, their writing and ability to read is also weak (Quigley, 1986; Bodner-Johnson, 1986; Geers & Moog, 1989; Meadow, 1980; Griffiths, 1983). Luetke-Stahlman (1988) stated that the analysis on the hearing impaired students' writing revealed that the vocabulary used by them is

rather limited, while the sentence structures are simple and rigid as compared to their normal friends of the same age. They also tend to repeat the same vocabulary and using limited words (Moores, 1985). Izani (1995) and Abdullah (2001) found in their research that the students had the right ideas but they were unable to express those ideas in written form and were not able to master basic grammar. The findings also showed that they rarely used suffixes in their writing.

Research by Cooper and Rosenstein (1996) showed that hearing impaired students face difficulty in almost every aspect of writing compared to normal students. There have been opinions that these weaknesses stem from their inability which seems to be a strong factor behind their academic performance (Holt, 1994; Luckner & Mc Neill, 1994; Titus, 1995; Nunes & Moreno, 1997). A study by Myklebust in 1953 discovered that hearing impaired students failed to master the language well and have an extreme inferiority complex compared to normal students.

The language introduced at an early stage to hearing impaired students is a key factor that determines their life (Myklebust, 1953). Awang (1981) stressed that the quality of a person's language is very much influenced by the language he or she was exposed to during childhood. The MySL has only a limited number of vocabulary and thus limits the usage of the language itself (Zulkifley, 1994). This situation is very true in the Malaysian setting. According to Helen (1995), most hearing impaired students face significant problems

in speaking skills and writing skills. In fact, most of them are unable to lip read accordingly and their reading ability is only minimal (Schelessinger & Meadow, 1972). Quigley (1984) also found that the reading ability of hearing impaired students, whose age ranges between 14 and 16 year old, is the same with that of a 7-year-old normal student.

MATERIAL AND METHODS

This study was carried out using an experimental method. Three sets of examination formats were tested to assess their effectiveness. The format of the examination is referred to as Hearing impaired Examination Accommodation System (DEAS). The target groups are as follows (12 students in each group):

No	Format	Group	Answering Mode
i	Normal examination format	control group	Answering normal question paper (paper pencil format)
ii	(DEAS I) Group translation with writing responses	experimental group 1	One translator signed all the instruction and question to the group of 12 students. They answered the questions on the answering paper.

iii	(DEAS II) One to one translation	experimental group 2	One translator signed all the instructions and questions to each of the students (one translator to one student). They answered the question by giving responses to the translator. The translator wrote the answers in the answer paper.
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RESULTS AND DISCUSSION

- a. Normal format
 - ii. The mean for comprehension in actual time is 21.67 is lower compared to the mean for additional time, i.e. 26.5.
 - iii. The mean for essay question in actual time is 13.00. This is lower than the mean for additional time which is 15.17.
- b. DEAS I Format
 - i. The mean for comprehension question in actual time is 21.33 and it is lower compared to the mean for additional time, which is 27.33.
 - ii. The mean for essay question in actual time is 13.25 and this is lower as compared to the mean for additional time (15.75). The extra time has improved the students' understanding of the questions on comprehension and essay question that are being tested.

TABLE 1
Mean score for comprehension and writing for normal time and additional time

Exam format		Score for comprehension (actual time)	Score for comprehension (additional time)	Writing (actual time)	Writing (additional time)
Normal	Mean	21.67	26.5	13.00	15.17
	N	12	12	12	12
Translation for group (DEAS I)	Mean	21.33	27.33	13.25	15.75
	N	12	12	12	12
Translation for individual (DEAS II)	Mean	28.33	34.67	15.83	18.67
	N	12	12	12	12

c. DEAS II Format

- i. The mean for comprehension question in actual time is 28.33 and this is lower compared to the mean for additional time which is 34.67.
- ii. The mean for essay question in actual time is 15.83, and this is also lower compared to the mean in additional time which is 18.67. The extra time has improved the students' understanding of the questions on comprehension and essay question that are being tested.

TABLE 2
The means for comprehension for every format, normal time and extra time

Time	Normal	Mean for DEAS I	Mean for DEAS II
Actual	21.6	21.3	28.3
Additional	26.5	27.2	34.7
Improvement	4.9	5.9	6.4

TABLE 3
The mean for writing performance for every format, normal time and extra time

Time	Normal	Mean for DEAS I	Mean for DEAS II
Actual	12.83	13.25	15.83
Additional	15.08	15.91	18.66
Improvement	2.25	2.66	

The research findings indicated that the examination that allows extra time and interpretation of sign language has helped them to understand the instruction and questions in examination papers more. This has also reduced the problems caused by the hearing impaired. The students' performances have improved in the examination with additional time, especially in DEAS I and II format. Although the performance in DEAS I showed an improvement, it was still comparatively low as compared to the performance in DEAS II format. Meanwhile, the performance for the normal format using the additional time showed an improvement but the improvement was insignificant compared to the performance in DEAS II and I formats.

The research findings also indicated two factors that have become the stumbling block for the students. The first factor is the language proficiency and the limited time to answer. The language difficulty factors identified among the students are confusion with long questions (66.7%), inability to understand the sentences (77.7%) and words (75%). Another factor is time, whereby students did not have enough time to read and to understand the information in each item.

Another factor contributing to the students' poor performance is the teacher's weakness in communicating and teaching using the sign language. In this research, the finding has showed that some teachers are incompetent in communicating using Malay Coded Sign Language (BMKT) in their teaching. They have also admitted that they face difficulties teaching abstract words and ideas. This was proven by 95.4% of the teachers (respondents) who agreed that the examination questions for the hearing impaired students should be administered in their first language. Around 95.4% of the respondents who also agreed that additional time and translation were able to improve the students' understanding to comprehension and essay question. All the respondents (100%) also believe that both the formats were able to enhance the hearing impaired students' performance in examinations. Thus, interpretation of the sign language and additional time are two factors that could certainly help to minimize the side effects of hearing impairment. In addition, these factors can improve hearing impaired

students' motivation and self-confidence during examination. The overall picture of the assessments is similar to other students with disabilities, with extended time as the most frequently used accommodation across all settings (Cawthon, 2006).

CONCLUSION AND SUGGESTIONS

It is apparent that the examination system for the hearing impaired students being practiced in Malaysia must be improvised or revamped. In particular, all the examination items constructed and administered must take into account all the factors that are hindering hearing impaired students from performing. Every hearing impaired student must be given an equal opportunity in their examinations. This is because a well-balanced examination has been shown to have enabled them to show their real academic performances. For this purpose, an institution should be established under the Ministry of Education to be responsible for all the examinations that involve students with special needs. This institute will be responsible for preparing special teachers who are experts in translating examination items into the Malay Coded Sign Language at all levels and must be administrated by individuals who are highly qualified in special needs education. The institution must also work together with the Malaysian Examination Syndicate. In addition, all the staff teaching hearing impaired students must be exceptionally excellent in the Malay Coded Sign Language. They must undergo or attend a course to master the Malay Coded Sign Language for a certain

period of time, such as once in every 3 years to coordinate and to learn the latest vocabulary of the sign language, in line with the progress of education in Malaysia.

This research has shown that the DEAS II format is successful in improving the performance of the hearing impaired students in their examination. In order to enhance hearing impaired students' performances so as to give them equal opportunities with those of normal students in the exam, the Ministry of Education must consider DEAS II format as an alternative exam format for all students with hearing impairment in Malaysia. The introduction and usage of this particular format in the school examination will make this country at par with developed nations.

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