The Analysis of Social Neuroscience Challenges Matrix Measurement for Sign Language Interpreter (JBIM) in Malaysia

Loh Hock Boey
Department of Arts & Humanities, Faculty of social Science, Lincoln University College, MALAYSIA.

Corresponding Author: josephloh@hotmail.co.uk

ABSTRACT

      The critical shortage of sign language interpreter (JBIM) in Malaysia has immensely affected more than 55,000 registered Deaf who live in the silence world. It is the result of the non-recognised status of JBIM as a profession and low public awareness on the accessibility of sign language interpreter (JBIM) services and the non-existent of accredited sign interpreter training program in Malaysia. Hence, the low new entry with high attrition rate in long term has damaged and post social challenges to sign interpreters industry. The objective of the study is to focus on the social neuroscience challenges identification by creating an exactness of measurement matrix to the situation. The methodology is qualitatively analyse the social neuroscience dimension of JBIM's challenges in their practise by examining each phrases of interpreting in social context from message flow matrix and spatial struggle matrix. The major finding is that there are three phrases of social neuroscience challenges. Pre-entry industry challenges; during-interpreting 3 dimensional challenges with 4 competencies dimension, 5 quadrants social neuroscience challenges and 3 interpreting process challenges; post-graduate inspiration maintenance challenges. The contribution of the study after synthesize the major findings and the research literature is that a model of social neuroscience challenges analysis for sign interpreters (JBIM) has helped to identify the actual challenges with measurement matrix which could minimise the further damage to the industry at the same time to maximise the performance standard for sign interpreters in the industry. The interpreters engagement flow has gave a clear career path landscape of social neuroscience challenges for the pursuing of interpreting career. Many private institution step in to stabilize this critical situation by introducing intensive training program to include any interested party without taking into account the suitability of the candidate as part of the educational components has created the further drop of the quality of the sign interpreter. With the newly introduced challenges analysis model will help the private institute to identify the problems by achieving an effective interventions to the problem. The recommendation after this study is to present a policy review to the government concerning a systematic ways of sign interpreter training program by providing a new spectrum on the identification of the challenges of the sign interpreter that lead to the improvement of the current situation.

Keywords- JBIM, sign interpreter, social neuroscience, challenges, measurement, sord.

I. BACKGROUND

Year 2003 marked a beginning of a new journey of expedition into Malaysia sign language (BIM), where researcher enplane into the exploration of beauty of sign language as a distinguish way of expression. Very soon after that quest to reach the next transit from a mere signor into the field of interpretation as a sign language interpreter (hereafter referred to as JBIM – Juru Bahasa Isyarat Malaysia, commonly used in Malaysia). Since then the waves of challenges has never stopped beating on the shore of sign interpretation field along the past 20 year's journey.

Despite the demand for JBIMs are high and the call of the voiceless Deaf are loud, undeniably, too few are coming forward in responding to such call and become the voice for the Deaf. The situation worsen by the high attrition rate from those who step forward. Hence, such call remain as silently loud in sign interpreting field. On this account, a necessitate research study to explore the situations of interpretation career in Malaysia and how to advance the knowledge on

challenges matrix measurement to reduce the drop out of JBIM as a form to respond to the call of silent mission.

1. Significant of this study

This study is significant to the social science for three reasons: the equality issue; the human right issue; too few study on challenges perspective faced by JBIM.

• Equality issue

According to Hurst (2012), there are four basic forms of equality

a. All men are equal as a person
b. All men must be given equal opportunity
c. All men to begin with equal condition and position
d. All men are equal of result or outcome

Does the equality mentioned above exist in Deaf community? Imagine living in a world where no one knows your language and you must navigate everyday life using interpreters to help you to communicate with others. Imagine a reverse world where everyone are Deaf and you are the only hearing person and you are excluded because of your "hearing ability" and you are labelled as an 'other.' That is the reality faced by Deaf community.

• Human right issue

It is the right of a hearing impaired person to the information accessibility in the voice setting. Malaysia passed the law of "People with Disabled Act 2008" (Act 685) to give the people with disabilities an opportunities to live as normal citizen of Malaysia. Malaysia had signed the UN Convention on the Right of People with Disabilities (UNCRPD) - Act 685, communication accessibility need for Deaf and hard of hearing person. However, there are lack of qualified JBIM for Deaf to meet the high demand of sign interpreting services by deaf students studying at local universities, polytechnics and community college.

• Too few study on the areas of the serious lacking of JBIM

Despite the important roles played by the sign interpreter to the Deaf in the hearing world, yet too few are answered to the call of the service. There is an increase number of Deaf in the academic who call for the sing interpreter to help, but such call has fall into the deaf ear. Why? It is significant to find out.

2. Objectives of the study

The role of JBIM is to bridge the communication barrier. JBIM, therefore, constitutes the voices for the Deaf community where they stand as a trained middle person by translating between two languages for a hearing person who use spoken language and a Deaf person who use sign language. To play this role well, the aim of this study is to lay down a systematic interpreting flow structure with different skills set required at different stages of interpretation, and, the potential challenges JBIM faced can be pinpointed with exactness by devising a challenges analysis model for an effective identification measurement matrix from social as well as the neuroscience perspective, so that the intervention scheme can be introduced.

3. Problem Statements

The purpose of this paper is to educate the general public and the key stakeholders which include all levels of government policymakers, consumers, interpreters, interpreting trainers, service providers, and others about the key issues and challenges affecting JBIM field, and to provide recommendations to address these issues and challenges. The key issues and challenges that impact the JBIM profession are as follow:-

• The disproportion number of JBIM and Deaf in Malaysia

The disproportion is due to a massive deficit of qualified JBIM in Malaysia. If we take the ratio specified by Johnston (2004) where there is one signor in every 3,000 inhabitants. With a current population of 32.7 million people in Malaysia, we should have a number of 10,900 signers (32.7 million/3000). However, the actual number of JBIM in Malaysia has not properly documented. Many individuals refer themselves as sign interpreters that make it difficult to determine the actual number of practising professional and authorised JBIM in Malaysia. According to president of Malaysian Federation of the Deaf (MFD), Mr Mohamad Sazali Shaari said in The Star online, Friday. 20 September 2013, that there are 30 JBIMs to help the 55,000 Deaf community in Malaysia to communicate with the public. By this given number, the ratio is for every one interpreter in Malaysia is for 1833 registered Deaf in need. However, if taking into consideration of the unregistered number of Deaf of 1.9 million, it would be one interpreters need to serve a number of 63,000 Deaf. This is a very challenging duty and S-NrS struggle imposed on JBIM.

• The absent of the Quality Control (Q.C.) body in Malaysia

Sign interpretation involves a multi-disciplinary and multi-dimensional competency. As such it is challenging to define what is a good interpretation quality, how to teach, and even harder to evaluate (Roberts, 1992). The challenges of assessment difficulty has further decline in JBIM's quality. According to Zwischenberger and Pöchhacker (2010), these quality criteria should include sense-consistency with original message, fluency of delivery, synchronicity, logical cohesion, appropriate style, completeness, lively intonation, pleasant voice, native accent, correct terminology, and correct grammar adapted. In Malaysia, although there is Society of Interpreters for the Deaf (S.I.D) located in Selangor and Federal Territory as a registered non-profit and non-governmental voluntary organization founded in 1990 with the mission to serve on Deaf community by providing an opportunity of equal rights to information accessibility and communication, and, to provides a platform for JBIM to share and exchange ideas on issues related to interpreting. However, there is no strict reinforcement on JBIM's quality to keep up to the standard delivered by JBIM.

- Lack of public education of higher unit for JBIM training

Two major problems arises due to the scarcity of legitimate higher learning centre.

a. Accreditation of JBIM

To have a professional and accredited interpreter is a complex area of work, the social challenges to have monetary ability to pay for the school fees, and it demands a high level N-SrS commitment on the part of the potential JBIM to take years to complete the training as a certified JBIM in a non-recognised profession country. Language proficiency is another challenge as key requirement to be a certified JBIM. While there is need of interpreters, those who are interested must have the right qualifications before they become JBIM. Without the formal university training, the process of accreditation is an issue. Current's JBIM education programs and training options do not appear to meet industry needs (Bontempo and Napier, 2007). The education role is taken up by private sector up to not accredited diploma level only. Yet, Supply of JBIM is always at the short because the process to train up a JBIM takes a considerably long time. The demand of IBIM by Deaf community is in a desperate need.

b. Acquisition of language proficiency

Time challenge is the main deterrence factor to train and retain a JBIM coupled with lacking of the higher education programs in Malaysia has worsen the situation. Interpreting is a performance-based profession (Gish, 1992). The interpreting performance is depend on the language fluency. To acquire the language fluency, it requires time, dedication, study, immersion in the language community, and constant practice. JBIM expected to master at least two languages, the spoken language and sign language. JBIM student may have the potential to handle a simple communication concepts for daily life usage after completing the basic sign classes by using their learned lexical signs (commonly call "Sord", meaning word into sign), nevertheless, it takes years to be fluent in native conversations (master the Language prosody) at normal rates as interpreter on complex topics. As such, fluency challenges can only be solved by an on-going professional development which involves a long period of education, often about four to six years. Such a commitment to learning the Sign Language and the complex interpretation strategies can result in significant financial obligations.

- Information deficiency on effective usage of interpreting Services

One of the pressing challenge that impacts JBIM industry is knowledge lacking on how to use interpreting services effectively in accessing to the variety of social settings. Deaf who may not have had access to communication support and may be completely unaware of their rights to be accommodated by JBIM to information access services. Such knowledge is also lacking among the hearing people who need to communicate with a Deaf or hard of hearing person via interpreting services. Consequently, the available interpreter services is not being used. As such, educating the public about working with an interpreter would reduce frustrations and ultimately human rights complaints.

In short, the effort of this study is to work on four main problems mentioned here. This paper is designed to find a solution to the issues to the social neuroscience challenges (hereafter referred to as S-NrS:C) facing the JBIM communities in Malaysia by knowing the external social constructs challenges that lead to internal neuroscience responses challenge by introducing a S-NrS:C matrix measurement for JBIM. With this matrix measurement strategy, the acquisition of language proficiency journey is shorten by knowing exactly which segments to improve, meanwhile heighten public awareness and leads to better understanding and informed decisions in addressing the issues of effective use of interpreting service, ultimately a more Deaf inclusivity society in Malaysia through the service of JBIM as paid professional social worker.

II. LITERATURE REVIEW

In line with the scope of this study, two literature areas are to be reviewed by evaluating the relevant resources of the past research on this area so as to avoid the duplication, in which the knowledge gaps are identified, of which a new light of knowledge for advancement on the topic. The two areas are as follow:-

1. The challenges faced by the sign language interpreters

There are too few research done specifically on the topic of the challenges faced by sign language interpreter (Camgöz, N. C., et al., 2021), thus, the review of literature of interpreting field is presented in the following points extracted bit and pieces from the scholars around the world.

- Challenges of lacking the higher education for JBIM (Vincent, L., 2019).

Sign interpreter profession is still in the dawn and did not really start making any progress till after the eighties (De Wit, 2008). According to Bontempo (2013) he described the sign interpreter profession as being past infancy, but not yet into the teenage. It is because very few university offered a legitimate certification program at the undergraduate level (bachelor's degree) in most country to train the sign language interpreters and continuous learning for the existing sign interpreters to enhance their interpreting skill to a higher level (Anderson, G., 2021). Although there are educational institutions set up by practitioners offering the interpreter course, but all are in a very foundational level which is far from the established and suitable syllabus use in undergraduate degree program (Bancroft, M. A. 2015). Consequently, the quality of the recruited students are inadequately skilled and do not meet the minimum entry requirement. Student skills and competence at the time

of course exit are not ready to interpret is an issue (Bontempo & Napier, 2007). The challenges of the minimum credential standard for professional interpreters is therefore declining.

- Challenges of low supply of sign interpreter than demand

There is a significant demand for interpreters but a limited supply of competent sign interpreter (Vincent, L., 2019). By ratio, for every one JBIM in Malaysia is to serve about 2000 Deaf in need. The shortage of interpreters is not a new and surprising issue (Belknap, 2021). However, the challenges of interpreter's retention is another issue of lacking of supply (Silver, S. 2021). Career attrition is normal in every field, but when the attrition become exacerbating, it's becomes abnormal. According to Dr. Angela Dillon, who work as an interpreter trainer in TAFE SA's Diploma of Interpreting in Australia, argues that the high attrition rate has contributed to the low supply of the interpreter's availability. The Diploma of Interpreting course are running in capital cities only, even then the frequency of intake are too few in a year. The number of students who has successfully complete Diploma of Interpreting competencies and requirements and graduated as a certified interpreters educators is estimated at the rates of approximately 70% (ASLIA, 2006).

- Geography challenges

There are private body that run the interpreter education programs. The problem is that such programs do not run in all states of Malaysia. When the number of enrolment is low, inevitably only one program per year are available, and it is normally at a metropolitan city (Patrie, 1994). The geography challenge has also highlighted in a survey of interpreter educators by The Australian Sign Language Interpreter (ASLIA, 2006).

- Challenges of low association with Deaf community

According to Stone & Allsop (2007), language acquisition by two ways, either through the educational or the interpreter students keep a close connectedness with local Deaf communities. The challenges is that the link between courses and Deaf community have diminished (Olson, 2017). Situation got worse where the interpreter students do not have easy access to the Deaf community which potentially affects their acquisition of linguistic and cultural norms outside the artificial classroom environment (De Meulder, M., 2021). The role of Deaf community in determining interpreting quality and interpreting preferences remains very powerful (Napier, 2007). The challenges of disconnected with the Deaf community to interpreter is need to be rekindled and nourished, so as to create a network and ties between interpreter and the Deaf community for existing interpreters and the interpreter students.

- Challenges of quality

When looking at the quality side of challenges in interpreting, studies until today have looked at three main aspects:

➢ Quality of the interpretation (Hall, M. L., 2019). This is referring to the accuracy of the content interpreted. The drop of the minimum credential standard of entry for professional interpreters has caused the challenges to the quality of their interpretation.

➢ Quality of the interpreters (Vincent, L., 2019). This is referring to the quality of interpreters recruited.

➢ Quality of spoken language interpreters (Drugan, J. 2017). This is referring to the reverse interpreting where the sign interpreter is voicing for the Deaf speaker to the hearing audience in a conference. The challenges are escalated by the toughness of voice interpreting (Rastgoo, R., 2021). Sluis (2011) indicates that interpreting into spoken language (sign-to-voice) is of inferior quality compared with interpreting into Sign Language (voice-to-sign). Hermans et al. (2007) claims that the challenges in voicing interpreting make no difference between junior and senior interpreters.

2. The Measurement of the challenges

Theoretical Framework by Prof So Hee Jung Hwa Choi who wrote on "The Interpretive Theory of Translation" (Won, J. H. 2019). He is a Korean conducting graduate program of Translation and Interpretation in Hankuk University of Foreign Studies, founding member and the president of the "Korean Society of Conference Interpretation". His theoretical framework is used here as the measurement of challenges matrix For JBIM in this study on interpretive process which involved 4 command of competencies and 3 interpretive stage. Following presented diagram for a better grasp of his theoretical framework.
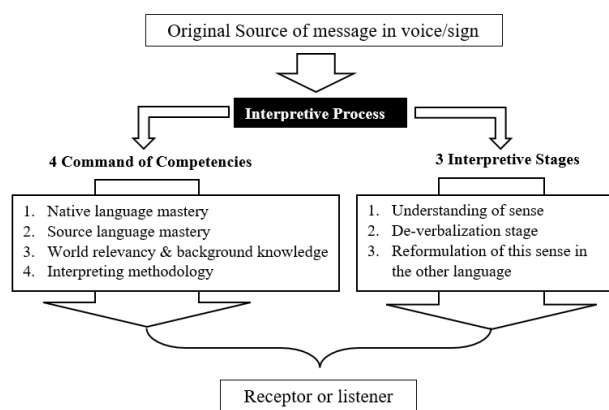

Diagram A: Theoretical Framework Diagram

III. RESEARCH METHEDOLOGY

Qualitative research design was performed with a group of 30 JBIMs on their challenges faced. The results found is checked with a confirmatory process through a resolute approach by a single case face to face semi-structured in-depth interview and mapping across the existing literature for validity. Two levels involved.

1. Data collection and content analysis phrase

The primary goal of the study is to resolve the issues S-NrS:C perspective that faced by JBIM by

digging into their deep personal experience through the interpreting job assignment, both positive or negative emotional experience. 4 main questions is designed to explore the meaning and experiences of the challenges encountered by JBIM in the social construct. The only "must" interview selection criteria for participant are those who are serving as JBIM currently in Malaysia.

a.　What ARE the challenges you face in your assignment as JBIM?

b.　Why do you think the challenge happen? (Give answer of "why" for each challenges)

c.　How do you react at that time when challenges happen?

d.　What do you suggest to improve the challenges?

　　　　The interview done through cold calling phone call to JBIM found in whatsapp and telegram group from numerous sources. However, the number of JBIM in Malaysia is so small that the total numbers available are about 200 and the repetition of the same JBIM in different group from the source. The final number respondents by a simple random sampling are 34 JBIM answered the call and willing to be interviewed. All calls are voice recorded with their permission. However, 4 are taken out finally as incomplete information for analysis and the remaining 30 samples are selected for thematic content analyse. Two data aspects of focus: social structure (within which social context participant's interact at different environment), and, neuroscience responses (neurone-responses within the social structure that JBIM's sense of psychosocial challenges is developed). The final conceptualized themes is done according to different sign language interpretation stages.

2.　Data confirmatory phrase

　　　　Three confirmatory test is performed to examine the validity of the data.

- Principal components and factors analysis by SPSS

　　　　The confirmation of a social components by duplication observation test to avoid the duplicity of similar social components in the 5 interpreting phrases. Rotate component matrix output of principal components analysis to estimates of the correlations between each of the estimated components by varimax with Kaiser Normalization rotation method, rotation converged in 6 iteration. After that, the S-NrS:C factors is tested by communality to remove the weak and unrelated factors for the study.

- Single case in-depth interview

　　　　Single-case studies design is selected in this study to verify the qualitative data collected from JBIM to provide a viable alternative to large group studies such as randomized clinical trials. In this study, single case studies involve repeated measurement of a dependent variable to see the before (baseline) and after (intervention stage) and manipulation independent variable by introducing the independent variable through

concurrent validity test as a form of rigorous evaluation method test the success of an intervention or treatment on S-NrS:C measurement matrix and to also provide evidence about the general effectiveness of an intervention. After which a conceptual proposition on S-NrS:C analysis model is devised as the JBIM's challenge matrix measurement as tested model by SPSS version 25 for the Principal Components and Factors Analysis.

　　　　The single case participant was born a hearing. She studied in convent high school with strict English polished speaking and strong sense of speaking and writing language mastery and proficiency. Until age 17 she starts losing her hearing capacity gradually. At age 20 she were diagnose profound hearing loss without a known cause. Since then, she live as a Deaf (Capital D) lady for twenty years with the hearing aids and actively involved in the Deaf community. At the age of 40, she has gone for the surgery to have the cochlear implant done so as to have the access to the sound with this artificial ear. Ever since then, she gain back her hearing with a lot of adaptation to the sounded world again. At that point on she has both identity, as a deaf (small letter d) as well as hearing, she has represented an extreme unique case and she started to dynamically involve in the interpreting field as well as providing the JBIM training in church setting for the past 40 years where her experience forms the critical case in testing a well-formulated theory. She is currently 60 years old. Due to her peculiar situation, the participant is not only living as Deaf individuals and serving the Deaf community all her life that make her fully bounded and connected with Deaf and hearing by Yin (2009) standard, and cultural competence, sign language competence, interpreting competence with cognitive complement by Choi (2001) standard, which form a revelatory case to test the dependent variables from the larger JBIM group.

- Mapping across with Prof Choi "Translation framework" literature

　　　　The research model of S-NrS:C measurement matrix for JBIM is mapped across to the justification process with Prof Choi's theoretical framework literature for importance and significance of this research work. His theoretical frameworks provide four dimensions of insight for this qualitative research:

1.　Provide model organization focus to this study by limiting the scope of the relevant data on specific variables and redefining to avoid duplicity.

2.　Analysing the exposed similarity and differences of the two for obstructing meaning to explain the problem this research seeks to address along with a literature review.

3.　Connect the study to existing study topic and objectives to make up the evidence for this research and its space in S-NrS:C measurement matrix.

4.　Identify strengths and weaknesses of the conceptual proposition framework.

IV.   ANALYSIS AND MAJOR FINDINGS

The demography of 30 JBIMs who has participated in this study consist of 8 males and 22 females, of which 4 participants with less than 10 years interpreting experience, 10 from 10 to 20 years and 16 JBIMs above 20 years of interpreting experience. They are from all over the land of Malaysia. There are two variables discovered from thematic content analysis, namely the independent Social construct variables and the dependent neuroscience responses of JBIM" challenges variable. After the content analysis for thematic, there are 10 social constructs with 35 S-NrS:C factors found. Each social construct is being seen as two sources of influences, namely the external influence and internal influence. Each influence source is studied by three stages of interpretation: receiving-conversion-expression phrase of interpretation.

1.   *Thematic content analysis*

Following are the finding of the social construct components and the neuroscience challenges responses with the delineating variety of S-NrS:C units of meaning factors. They are as followed:-

Table 1: S-NrS:C from the 30 participants

Social Construct	Interpreting matrix Stages	Neuroscience challenges responses Factors
1) Performance Standard 2) Profession Recognition 3) Training Process 4) Professional Development 5) Public Awareness 6) Resources 7) Field Diversity 8) Deaf Community 9) BIM Linguistics 10) Interactive Personality	E: External Influence I: Internal Influence Ri: Receiving phrase ©: Conversion phrase €: Expression phrase	1) Content accuracy 2) Environmental noise and echo 3) Technical problem 4) Speaker delivery: fast or unclear 5) Weak language mastery 6) Topic unfamiliarity 7) No sign for particular term 8) Firm's organizational culture 9) A non-profession in Malaysia. 10) No reward system 11) Public expectation pro bono service 12) Deaf paying capability 13) Part time volunteer 14) Incomprehensive training program 15) no trustworthy training provider 16) standard monitor centre 17) Uncertified educators teachers 18) Students quality control 19) Yearly skill enhancement course 20) Slow sord evolution to rapid market Dev. 21) High drop out 22) Low public awareness of JBIM services. 23) Gift of love reward for the services 24) JBIM is a Social worker profession 25) JBIM union 26) Geographical challenges 27) Wide interpreting setting to major 28) Relationship between Deaf and JBIM 29) Deaf community sceptical attitude toward JBIM 30) Sign disparity (Deaf version & JBIM version) 31) Topic depth (Deep concept to gripe by Deaf is seen as JBIM inability) 32) Sord vocabulary shortage 33) Literal interpreting style 34) Linguistic confusion (One sord fit all) 35) JBIM personality trait - cognitive abilities

Two tests are performed for validity of the thematic results from content analysis above by evaluating the similarity and repetitive factors, and, the coefficient strength of the social components and S-NrS factors:-

a.   *Duplication observation test*

To avoid the duplicity of similar social components in the 5 interpreting phrases, rotated component matrix output of principal components analysis is done to estimates of the correlations between each of the estimated components by varimax with Kaiser Normalization rotation method, rotation converged in 6 iteration.

Table 2: Rotated Component Matrix

	Interpreting matrix stages				
	1	2	3	4	5
1.　Performance Standard ©	**.891**	.192	.200	.120	.205
2.　BIM Linguistic mastery ©	**.866**	.093	.016	.079	.019
3.　Profession Recognition (E-Ri)	.054	**.895**	.070	.128	.053
4.　Fields Diversity (E-Ri)	.165	**.826**	.161	.040	.230
5.　Training Process (I-€)	.142	.006	**.890**	.111	.070
6.　Professional Development (I-€)	.081	.180	**.841**	.190	.244
7.　Public Awareness (E-€)	.164	.194	.132	**.836**	.234
8.　Resources (E-€)	.081	.118	.102	**.782**	.268
9.　Deaf Community (I-Ri)	.264	.067	.087	.124	**.803**
10.　Personality (I-Ri)	.066	.003	.032	.263	**.787**

There are 5 acceptable independents components emerged after combining the repetitive social components of the similar nature. The 5 re-named social construct components are:-
1. Message Decrypt: BIM linguistic mastery performance standard
2. Mise en scene: JBIM industry benchmark
3. Message conversion: Training and education system
4. Message encrypt: Industry information resource yardstick
5. Entourage: Mind-set psyche criterion

b.　Communality test: Remove the weaker factors for analysis

The 5 components is cross checked with 35 S-NrS factors for communality in factor analysis. The value of each factor's variance (h2) is showing their underlying latent spirit of cooperation amongst all the factor's correlation as the sum of squared factor loadings for the factors. Factors values 0.4 and below is consider as low commonality with the other variables and is a target for elimination.

Out of the 35 S-NrS challenges factors for JBIM, 25 factors with communality value above 0.4. As such 10 low factors correlation with others is eliminated. Following are the retained factors according to the 5 components.
1. Message decrypt phrase: BIM linguistic mastery performance standard
a. Uncertified BIM educators/teachers
b. No trustworthy training provider
c. Incomprehensive training program
d. Sord development: sord vocabulary shortage
e. Specialisation - wide interpreting setting to major
2. Mise en scene: JBIM industry benchmark
a. Environmental – Noise, echo, technical sound system, fast & blur Speaker's delivery
b. Public expectation for pro bono service – no reward system
c. Public awareness of JBIM services
d. Status of JBIM - non-existed profession　Part time JBIM
e. Deaf ability to pay JBIM
3. Message conversion: Training and education system

a. Weak language mastery
b. Content accuracy – unfamiliarity of a topic & culture diversity
c. Linguistic confusion (One sord fit all)
d. No sord for particular term
e. Interpreting style - literal interpreting
4. Message encrypt: Industry information resource yardstick
a. Interpreting Quality control standard monitor body
b. Students quality control for entry
c. Yearly skill maintenance and enhancement course
d. Relationship between Deaf and JBIM
e. JBIM personality trait - cognitive abilities
5. Entourage: Mind-set psyche criterion
a. Insecurity due to weak JBIM union (SID) to protect their right
b. High drop out of JBIM
c. Sign disparity (Deaf version & JBIM version)
d. Deaf community sceptical attitude toward JBIM
e. Topic depth (Deaf inability to gripe a deep concept is seen as JBIM inability)

2.　Data validity confirmatory
i.　Single case study concurrent validity test as subtype criterion validity for the data

The established 5 social construct components with 25 S-NrS:C factors is subjected to the test by a concurrent validity test using single case study method. Concurrent validity refers to the degree in which the measurement of single case study outcome correlated to the already have been established and tested as valid 5 components with 25 S-NrS:C factors. The resulting correlation would be a concurrent validity coefficient (CVC) by spearman's rank correlation coefficient, namely, whether the single case study has concurrent validity (subset of criterion validity) in agreement and correlates well with the existing 5 components with 25 factors. Therefore, the validity coefficient range from –1 to + 1 is observed if coefficients closure to 1 is an absolute value indicator of high concurrent validity of the new measure.

Table 3: Relationship between single case criterion validity with S-NrS:C results

Social Components	Social Neuroscience Factors					Spearman's CVC values
	a	b	c	d	e	
1	V	V	V	V	V	1
2	V	V	V	V	IV	0.985
3	V	V	V	IV	V	0.882
4	V	IV	V	V	IV	0.813
5	V	IV	V	IV	III	0.723
TOTAL						0.881
Indicator: I=full different, II=different, III=neutral, IV=similar, V=full similar						

The results obtained from the single case study showing a positive agreement and high correlation with the existing 5 components with 25 S-NrS challenges with average total of 0.881 CVC value. Therefore, the matrix for social neuroscience challenges JBIM facing has reached. The finding establishment of 5 components (External social influencers) with 25 S-NrS:C factors (Internal neuro-challenges) within the three interpreting stages, a new conceptual proposition for JBIM's S-NrS challenges analysis model during the interpretation as matrix measurement has concluded as follows.

JOL Conceptual Proposition: S-NrS:C Analysis Model

After looking at the major findings on the struggles and challenges of JBIM, a conceptual model proposal is introduced to determine the S-NrS:C measurement matrix named as "The Social Neuroscience Challenges Analysis Model" for JBIM. Currently, there is no available model as to how the challenges faced by JBIM is to be systematically determine and measured. As a result, there is always seen as something lacking in the solution to solve JBIM's challenges. For this reason, a new conceptual model in this study is proposed on how the challenges can be identified. There are two matrix to the Challenges Analysis Models: language axis and spatial axis, with 5 intersectional quadrants to the challenges analysis model. The explanation is as follows:-
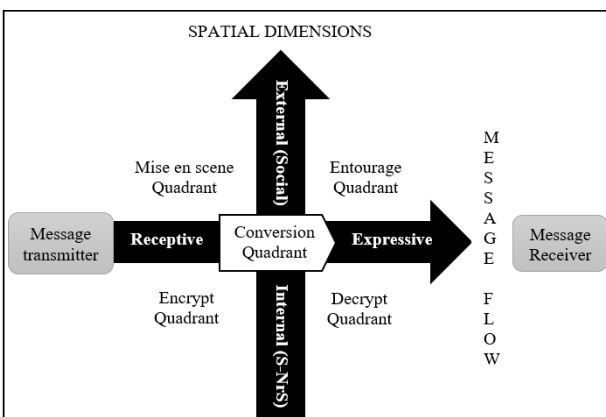

Diagram B: JBIM *S-NrS Challenges Analysis Model*

A. Language Matrix: three interpretation issues in an inseparable simultaneous series attribute to JBIM challenges.

a) Reception issue (Pre-interpreting)

This is the struggle of receiving information or the way it is received. It is the difficulty to understand what is being said due to noise in the environment, sound system, and speaker's tonality.

b) Conversion issue (During-interpreting)

This is the struggle where a message is processing in the mind of JBIM. In order to convey the meaning, the original source of message is captured and translate into a form of ideas or concepts in the mind, then how information expression in an understandable content to the targeted audience.

c) Expressive issue

This is the struggle in the act of making known speaker's thoughts or feelings. The content of the original source is expressed in sense-consistency with original message, fluency of delivery, synchronicity, logical cohesion, appropriate style, completeness, lively intonation, pleasant voice, native accent, correct terminology, and correct grammar to the targeted audience through the language mastery skill possessed by JBIM.

B. Spatial Matrix: two influential factors that contributed to JBIM's challenges

a) Internal influence

It is a form of a neuropsychological struggle within the mind of JBIM due to moral values, self-image or interpersonal conflict that influenced the performance of JBIM to deliver a quality interpretation session.

b) External influence

This is a form of a struggle due to the external environment which influence JBIM's interpretation performance standard. Examples like environment voice, bad sound system, echo effect, poor lighting and the unclear voice of the speaker are not within the JBIM control, yet affecting the quality their interpreting assignment.

C. The Intersection: 5 quadrants of S-NrS challenges of JBIM emerged.

a) Encrypt quadrant

It involves an internal struggle due to the information reception by JBIM. This situation happens when:-

▪ Resources: Lack of interpreting materials

JBIM ill-prepared due to receive very little briefing about the conference and the speakers so that the familiarity of terminology and the background information enabling JBIM to take on the job with higher confidence level where the message is encrypted by JBIM in an effective manner to be understood by the receivers.

• Linguistic regime

The high level of proficiency demand in the source of target languages. Speaker's local slang from different regions, the use of local idioms, jargons when they speak, so that it can be encrypted effectively. Unavailability of yearly skill maintenance and enhancement course

• Relationship between Deaf and JBIM

• Interpreting quality control standard monitor body. Students quality control for entry and JBIM personality trait affecting their cognitive abilities

b) Decrypt quadrant

An internal struggle as to information reception effectiveness before expression.

• BIM linguistic mastery performance standard: JBIM is general signor without specialisation in wide interpreting setting to major

• Interpreting methodology

"Meaning interpreting" is the best choice where the information from the transmitter is interpreted in a way that the receiver could understand fully. "Literal interpreting" is not so desirable where the message is being translated word for word, where the receiver may not understand what the information is as it may lose the real sense of the message. "Not interpreting" i.e. omit the information or stuck**.**

• Interpreting smoothness

Content delivered accurately and at the speed required and in the tone of voice that reflects how it normally sounds in the target language. JBIM must possess the decrypting skill which demand a high internal strength and a strong language mastery. At the same time manage the unpredictable situations arises.

• Training provider system: Uncertified BIM educators/teachers, non MQA accredited trustworthy training provider, and incomprehensive training program.

• Sord development process: sord vocabulary shortage to the rapid developed world.

c) Mise en scene quadrant

It involve the challenges created by the external environment affecting the information receptiveness by JBIM during either simultaneous or consecutive interpreting.

• Environment issues like bad location where JBIM stand with noise & echo respond, audio equipment malfunctioning, speaker fidgets and ruffles the microphone distorting the sound or speak too softly or too fast, leaves a fixed wired microphone by walking around the stage to speak affecting JBIM's comprehension.

• Public expectation for pro bono service – no reward system

• Low public awareness of JBIM services

• Status of JBIM - non-existed profession Part time JBIM

• Deaf ability to pay JBIM

d) Entourage quadrant

It is involve external challenges that cause JBIM's expressive quality

• External environment like lighting used by organiser to create the special effect to the hearing audience affected JBIM's visibility to the Deaf, or, wrong dressing code by JBIM where clothing not plain with great contrast to JBIM's skin colour so that the sign can be seen clearly.

• Stage setting too distance from the deaf, or not at the same eyes level of where the Deaf are sited, or the front audience is blocking the vision of those who sit at the back that can be seen clearly by all Deaf of the sign.

• Deaf community sceptical attitude toward JBIM's ability. This scepticism occur due to topic depth where the Deaf inability to gripe a deep concept, or disparity of sign used by Deaf and JBIM, is seen as JBIM inability.

• Insecurity felt by JBIM due to weak JBIM union to protect their right.

• High drop out of JBIM

e) Conversion quadrant

This is referring to the situation where combination of the four issues above.

• Content accuracy: Lacking of knowledge of local culture and the cultural sign, or unfamiliar with the topic.

• Challenges with humour, sarcasm and jokes

• Weak language mastery: understanding of technical and complex vocabulary

• Linguistic confusion: one similar sord fit all, or no sord for particular term

• Interpreting style – know your audience to adjust delivery level, style of interpreting for less intellectual Deaf while not water down messages to those intellectual Deaf

With the result of this study where *JBIM's S-NrS Challenges Analysis Model* is introduced. The model has offered an easy way to identify which quadrant area of challenges that JBIM are having. By knowing either an interpreter is suffering from "encrypt" or "decrypt" challenges, and the nature of such problem is "environmental" or "entourage", or it is a "conversion" challenges, a right solution could be offered to handle the situation. With this model in mind, the future study could be focus on the solutions on each quadrant so that it is able to complete the problem-solution cycle.

ii. Comparative mapping across technique between "JBIM S-NrS Challenges Analysis Model" and "The Interpretive Theory of Translation"

The background of the two concepts: Prof Choi's theory is specifically for the translation work, meaning, word to word from spoken/written language to another spoken/written language. However, JBIM S-NrS challenges analysis model is interpreting spoken words to sign language or sign language to spoken language. Both are focusing on the same interpretive issue. Study statement: are they more similar, or do they differ more than is obvious? Theory-comparison help us learn more about the interpreting processes change with wider perspectives and maintain healthy concept development than does study of any single theory alone, and thus has the potential to better guide the development of intervention. The process of comparison is finding similarity and differences between two concepts or more things. After that how the two interact and become one. The reliability of JBIM S-NrS challenges analysis model is enhanced. Table 4 in the following shows the mapping across of the two concept of the interpretive process.

Table 4: The comparative results of two literature concepts of mapping across

Interpreting Process	The Interpretive Theory of Translation	JBIM S-NrS Challenges Analysis Model
A. Interpreter Entrance Pre-requisite	NIL	Public Awareness Personality test Legalization of interpreters profession Decide the major
B. 3 Language interpreting matrix		
• Language collecting	Understanding of sense	Information receiving stage
• Language interchange	Reformulation of this sense in the other language	Information processing stage
• Language giving	De-verbalization stage	Information expression stage
C. 3 Spatial interpreting matrix		
• External dimension	Not consider	Decrypt quadrant Mise en scene quadrant
• Between external and internal dimension	Not consider	Conversion quadrant
• Internal dimension	Not consider	Entourage quadrant Encrypt quadrant
D. Interpreting skill	Command of:- Native language Source language World and background relevant knowledge Interpreting methodology	a. Language mastery b. Content mastery c. Culture diversity mastery d. BIM Linguistic mastery e. Interpreting style mastery
E. Post-Interpreting	NIL	Post graduated licence renewal for improvement Sign interpreters custody Deaf active involvement

V.   DISCUSSION

The conceptual proposition of the analysis of social neuroscience challenges matrix measurement for sign language interpreter (JBIM) in Malaysia, after mapping over to Prof Choi's "The Interpretive Theory of Translation" full challenges matrix measurement is unfurled. There are three dimensional process of JBIM's challenges engagement level exists as the matrix measurement. Firstly, Pre-engagement 4 S-NrS industry challenges measurement matrix; secondly, 5 social components that give rise to 25 social neuroscience challenges factors during the engagement measurement matrix; thirdly, post-engagement 3 S-NrS challenges measurement matrix. The above three dimensional process of S-NrS:C JBIM engagement faced are all through the identification measurement matrix of three language interpreting matrix with three spatial interpreting matrix.

Diagram C in the following are the full landscape of measurement matrix for JBIM's S-NrS:C analysis model after merging with Professor Choi's "Interpretive Theory":-
1) Pre-engagement: 4 JBIM industry Challenges matrix measurements
2) During-engagement: 3 dimensional process examination of matrix measurements
•   4 Competencies
•   5 Spatial measurement
•   3 Interpretive Stages

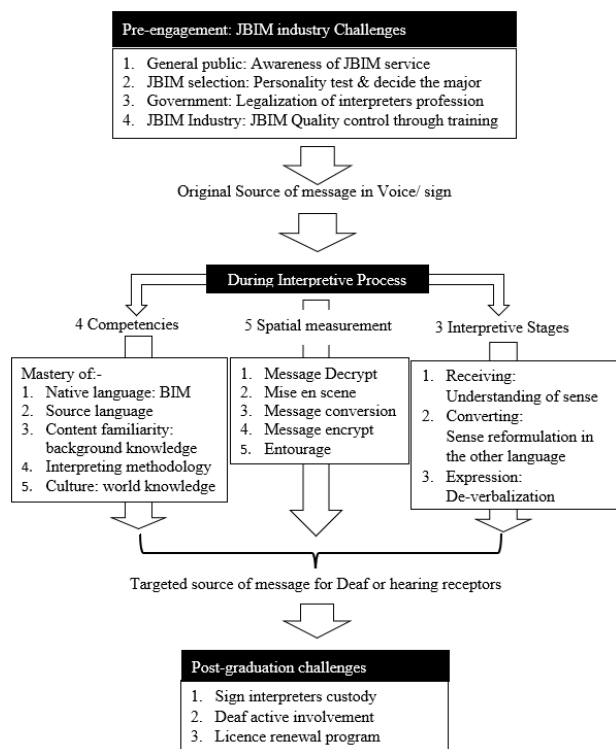3) Post-engagement: 3 JBIM post graduated challenges matrix measurement

Diagram C: JBIM S-NrS challenges measurement matrix in interpreting

VI.   CONCLUSION

The issue of JBIM S-NrS challenges are now become identifiable by having the S-NrS challenges Analysis model measurement matrix for an effective intervention. The scope of this study on the parameters of challenges and the training process is achieved.

The issue of lacking of JBIM in Malaysia can be overcome by the following recommendation.

• Video Interpreting Services (VIS)

Recent years of traditional face to face interpreting has moved into technology major shift in JBIM industry through sign interpreting by using video. The provision of video relay services has solved the problem of the shortage of sign interpreter because of the geography challenges is no longer an issue. The VIS project has been actively studied and tested by a team of professional researchers in Monash University Malaysia, however, the support from government for VIS is still lacking for a full and successful implementation. Hoping with the VIS's success, signers who took the role as JBIMs is decreased.

• Local public university to offer JBIM program

The shortage of JBIM is caused by the lacking of the formal recognition to the sign interpreter profession in Malaysia. It is not uncommon for clients to have to reschedule appointments in order to access to a qualified interpreter, otherwise, client have to go without

interpreters. The supply of qualified interpreters has not kept up with the demands. However, with university-level programs that educate interpreters, the new batch of the qualified JBIM with the degree level could improve the public perception on the sign interpreter's profession.

• Freelance interpreter

Data from interpreting finding reveals that the number of interpreters is decreasing while the demand for services is increasing, and that the current number of sign interpreters has increasingly difficult to fill up the demand. Meaning the number of appointments required where the service provider was unable to secure an interpreter for a client, the rate of "no fill" appointments has increased. By recruiting those left sign interpreters to work as a freelancer on the part time basis could curled the problems of the shortage of sign interpreters.

• JBIM career training guideline

Since the government training centre for JBIM is unavailable currently in Malaysia, and the private institution that took up the role as the training providers has not gain the approval from the Malaysian Qualifications Agency (MQA). The researcher is proposed a "Learning Guideline" to recruit and train any potential JBIM. Please note the difference between a signer (learning sign language) and an interpreter (learning to interpret from original language source to the other targeted language source). The recommended guideline is for the sign interpreter. Following are the guideline:-

a) Pre-entry criteria: possessed Basic Sign Language certificate, pass professional Selection factors and personality Test
b) Initial basic sign language formal training
c) Selection of major for interpreting setting
d) Supervised internship (Wang, 2015)
e) JBIM profession pursuance with Deaf community as mentors (Jankowski, 2014)
f) Skills enhancement and licence renew for JBIM industry professionalism (Humphrey, 2015)
g) Exit criteria for interpreter re-education programs

For further future study from here, the relevant solutions as to how to solve each quadrant of challenges. For a change, it is recommended for improving interpreting programs to include entrance and exit criteria for interpreter education programs (Winston, 2013). Meanwhile, the further study to produce a policy to influence government of Malaysia to recognise JBIM as a profession, to introduce the sign JBIM program as a degree course in local university, to form the interpreters union to support each other.

As a conclusion of the Study, the researcher reiterate the significant of this study. There are too small number of studies related to this field. While there are an increasing number of students with hearing disabilities at the public and private universities in Malaysia, the importance of the role of sign language interpreter in the

academic life of the hearing impaired is increased proportionately. At the same time to provide a new framework as to how to look at the challenges perspective of sign interpreters, meanwhile creating an awareness to the public on providing sign language interpreter services for the hearing impaired. It is also with intention to provide information about the current level of performance quality of the interpreter, as well as to propose recommendations. "Challenges Model of Sign Interpreter" is introduced. 25 new S-NrS challenges is clearly identified on why the shortage of sign interpreter in Malaysia. Hoping, there is a future study to enhance on what has started here and bring a change to the sign interpreters industry in Malaysia.

REFERENCES

[1] Anderson, G., & Stauffer, L. (2021). Identifying standards for the training of interpreters for deaf people.
[2] ASLIA. (2006). State reports on interpreter education and training. Second ASLIA National Interpreter Trainers' Workshop, Perth, Western Australia.
[3] Bancroft, M. A. (2015). Community interpreting: A profession rooted in social justice. In The Routledge handbook of interpreting (pp. 229-247). Routledge.
[4] Belknap, P., Korwin, K., & Long, N. (2021). Job coaching: A means to reduce unemployment and underemployment in the deaf community.
[5] Bontempo, K., & Napier, J. (2007). Mind the gap! A skills analysis of sign language interpreters. *The Sign Language Translator and Interpreter*, 1, 275–299.
[6] Bontempo, K. (2013). The chicken and the egg dilemma: Academizing a semiprofession. In E. A. Winston, & C. Monikowski (Eds.), *Evolving paradigms in interpreter education* (pp. 33-41). Washington, DC: Gallaudet University Press.
[7] Camgöz, N. C., Saunders, B., Rochette, G., Giovanelli, M., Inches, G., Nachtrab-Ribback, R., & Bowden, R. (2021, December). Content4all open research sign language translation datasets. In 2021 16th IEEE International Conference on Automatic Face and Gesture Recognition (FG 2021) (pp. 1-5). IEEE.
[8] Cokely D. (2009) *Phase II Deaf Consumer Needs Assessment Final Report*. Report submitted on behalf of the National Consortium of Interpreter Education Centers, <http: //www.interpretereducation.org/wp-content/uploads/2011/06/FinalPhase IIDCReport.pdf>.
[9] De Meulder, M., & Haualand, H. (2021). Sign language interpreting services: A quick fix for inclusion?. Translation and Interpreting Studies. The Journal of the American Translation and Interpreting Studies Association, 16(1), 19-40.
[10] Diriker E. (2011) "User expectation surveys: questioning findings and drawing lessons for interpreter training" İ. Ü. *Çeviribilim Dergisi, (in English, IU Journal of Translation Studies)*, 1(3), <http://www.journals.istanbul.edu. tr/iuceviri/article/view/1023011090/1023010348>.
[11] Drugan, J. (2017). Ethics and social responsibility in practice: Interpreters and translators engaging with and beyond the professions. The Translator, 23(2), 126-142.
[12] Gish, Sandra. (1992). A Vygotskian Perspective on Interpreter Assessment. In ElizabethWinston (Ed.) Student Competencies: Defining, Teaching and Evaluating: Proceedings of the9th National Convention of the Conference of Interpreter Trainers
[13] Hall, M. L., Hall, W. C., & Caselli, N. K. (2019). Deaf children need language, not (just) speech. First Language, 39(4), 367-395.
[14] Hermans D. / Dijk R. van / Christoffels I. (2007) *De effectiviteit van gebarentaaltolken in de communicatie tussen dove en horende mensen, (in English, The effectiveness of sign language interpreters in the communication between deaf and hearing people*), Utrecht, Pontem.
[15] Hurst, C. E. (2012). *Social Inequality: Forms, Causes, and Consequences* (8th Edition ed.). Routledge.
[16] Jankowski, K. (2014). Where are we? Back to our roots as we move forward in an evolving world. In D. Hunt & S. Hafer (Eds.), 2014: Our roots: The essence of our future. Conference of Interpreter Trainers (pp. 12-14). Retrieved from http://www.cit-asl.org/new/2014-1-where-are-we-back-to-our-roots-as-we-moveforward-in-an-evolving-world-jankowski/
[17] Johnston, Trevor. (2004) whither the deaf community? Population, genetics and the future of Auslan (Australian Sign Language). *American Annals of the Deaf* 148: 358-375.
[18] Kahane E. (2001) "Thoughts on the quality of interpretation", <http://aiic.net/ page/197/thoughts-on-the-quality-of-interpretation/lang/1>.
[19] Locker McKee R. (2008) "'Quality' in interpreting: a survey of practitioner perspectives." *The Sign Language Translator and Interpreter* (SLTI), 2/1, 1-14.
[20] Merriam, S.B. & Associates. (2002). Qualitative Research in Practice: Examples for Discussion and Analysis. San Francisco, CA: Jossey-Bass.
[21] Napier J. / Rohan M. J. (2007) "An invitation to dance: deaf consumers' perceptions of signed language interpreters and interpreting", in M. Metzger / E. Fleetwood (eds) *Translation, Sociolinguistic, and Consumer Issues in Interpreting*, Washingtion DC, Gallaudet University Press, 159-203.
[22] Olson, A. M., & Swabey, L. (2017). Communication access for deaf people in healthcare settings: Understanding the work of American Sign Language interpreters. The Journal for Healthcare Quality (JHQ), 39(4), 191-199.
[23] Orima Research. (2004). *A report on the supply and demand for Auslan interpreters across Australia*. Commonwealth of Australia. Available at http://www.facs.gov.au/ disability/auslan_report

[24] Rastgoo, R., Kiani, K., & Escalera, S. (2021). Sign language recognition: A deep survey. Expert Systems with Applications, 164, 113794.

[25] Roberts, Roda P. (1992). Student Competencies in Interpreting: Defining, Teaching andEvaluating, in E. Winston (Ed.) Student Competencies: Defining, Teaching and Evaluating: Proceedings of the 9th National Convention of the Conference of Interpreter Trainers

[26] Silver, S. (2021). Attitudinal changes of employers to hearing impaired workers after utilizing an ASL/awareness videotape: A pilot study.

[27] Sluis I. (2011) *An Effort to make a Cultural Bridge in Sign-To-Voice Interpreting*, unpublished MA thesis, Edinburgh, Herriot Watt University.

[28] Stone, C., & Allsop, L. (2007). Collective notions of quality of interpreting: Insights from the British Deaf community. Unpublished paper presented at Quality in Interpreting: Critical Link 5 Congress.

[29] Vincent, L., & Chiwandire, D. (2019). Funding and inclusion in higher education institutions for students with disabilities. African journal of disability, 8(1), 1-12.

[30] Wang, B. (2015). Bridging the gap between interpreting classrooms and real-world interpreting. International Journal of Interpreter Education, 7(1), 65-73. Retrieved from http://www.cit-asl.org/new/bridging-the-gap-between116 interpreting-classrooms-and-real-world-interpreting-7-1/

[31] Winston, E. A. (2013). Infusing evidence into interpreting education: An idea whose time

[32] has come. In E. A. Winston, & C. Monikowski (Eds.), *Evolving paradigms in*

[33] *interpreter education* (pp. 164-187). Washington, DC: Gallaudet University Press.

[34] Wit M. de (2008) Het beroep tolk gebarentaal, (in English, The sign language interpreter profession) Enschede, Gildeprint Drukkerijen.

[35] Won, J. H. (2019). The past, present, and future of interpreting studies in Korea: Focus on shifting research paradigms 1. In Translating and Interpreting in Korean Contexts (pp. 219-237). Routledge.

[36] Yin, R. K. (2009) Case Study Research: Design and Methods. SAGE Publications Ltd: London.

[37] Zwischenberger, C. (2010) Quality Criteria in Simultaneous Interpreting: An International vs. a National View. The Interpreters... Newsletter 15: 127...142.