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# DYNAMICS OF PORTFOLIO ASSESSMENT STRATEGY IN EVALUATING THE ENGLISH LANGUAGE SKILLS FOR PUPILS WITH HEARING IMPAIRMENTS IN FAKO DIVISION, SOUTH WEST REGION OF CAMEROON

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## Abstract

This study examined the impact of portfolio assessment on evaluating the English language skills of pupils with hearing impairment in Fako Division, Cameroon. Portfolio assessment, as an informal and learner-centred approach, was explored within the framework of inclusive education, where traditional assessment methods often fail to adequately reflect the abilities of learners with hearing loss. The research utilised a quasi-experimental design involving pupils with hearing impairment in selected inclusive primary schools. Data were gathered through English language tests, classroom observations, and interviews with parents, teachers, head teachers, and the divisional delegate. Quantitative data were analysed using descriptive statistics, t-tests, and regression analysis, while qualitative data underwent thematic analysis. The results indicated that pupils subjected to portfolio assessment performed significantly better in English language skills than those assessed through conventional methods. Statistical analysis (SPSS t-tests and regression) showed that pupils assessed via portfolios scored notably higher on post-tests (portfolio group mean=12.78 versus control=11.14; $t(38)=2.919$, $p<.05$). Regression analysis demonstrated that portfolio use was a strong predictor of language improvement ($\beta=0.336$, $p<.001$). Classroom observations and interview findings further revealed that portfolio assessment encouraged ongoing learning, increased learner engagement, self-reflection, and heightened teacher awareness of individual progress. The study concludes that portfolio assessment is an effective method for evaluating the English language skills of pupils with hearing impairment and recommends its systematic adoption within inclusive classroom practice.

## *Keywords:*

*Portfolio assessment, Evaluation, English Language Skills, Hearing Impairment.*

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***Résumé***

*Cette étude a examiné l'impact de l'évaluation par portfolio sur l'évaluation des compétences en anglais d'élèves malentendants dans le département de Fako, au Cameroun. L'évaluation par portfolio, approche informelle et centrée sur l'apprenant, a été explorée dans le cadre de l'éducation inclusive, où les méthodes d'évaluation traditionnelles peinent souvent à refléter adéquatement les capacités des élèves malentendants. La recherche a utilisé un dispositif quasi expérimental auprès d'élèves malentendants scolarisés dans des écoles primaires inclusives sélectionnées. Les données ont été recueillies au moyen de tests d'anglais, d'observations en classe et d'entretiens avec les parents, les enseignants, le chef d'établissement et le délégué de circonscription. Les données quantitatives ont été analysées à l'aide de statistiques descriptives, de tests t et d'une analyse de régression, tandis que les données qualitatives ont fait l'objet d'une analyse thématique. Les résultats indiquent que les élèves évalués par portfolio ont obtenu des résultats significativement meilleurs en anglais que ceux évalués par les méthodes conventionnelles. L'analyse statistique (tests t et régression avec SPSS) a montré que les élèves évalués par portfolio ont obtenu des scores nettement supérieurs aux post-tests (moyenne du groupe portfolio = 12,78 contre 11,14 pour le groupe témoin ; $t(38) = 2,919$, $p < 0,05$). L'analyse de régression a démontré que l'utilisation du portfolio était un prédicteur fiable de l'amélioration linguistique ($\beta = 0,336$, $p < 0,001$). Les observations en classe et les entretiens ont également révélé que l'évaluation par portfolio encourageait l'apprentissage continu, renforçait l'engagement des apprenants, l'autoréflexion et permettait aux enseignants de mieux suivre les progrès individuels. L'étude conclut que l'évaluation par portfolio est une méthode efficace pour évaluer les compétences en anglais des élèves malentendants et recommande son adoption systématique dans le cadre de l'inclusion scolaire.*

***Mots-clés :*** *Évaluation par portfolio, Évaluation, Compétences en anglais, Déficience.*

## Introduction

Hearing impairment affects millions of people worldwide and is estimated to affect more than five percent of the global population (Chu & Flores, 2011). For children this condition often alters typical pathways of language development and learning, increasing reliance on visual supports and specialised instruction (Marschark & Spencer, 2010). Accurate evaluation of English language skills is therefore essential because it documents communication ability, guides instruction, and supports participation in school and community life (Tan, 2023). Traditional one-time tests risk overlooking steady or multimodal progress that is typical for pupils with hearing impairment and can undervalue the strategies these learners use to communicate.

This article examines the effects of portfolio assessment on how teachers evaluate English language skills for pupils with hearing impairment in Fako Division, Cameroon. Portfolios collect a range of learner work over time, encourage reflection, and make learning processes visible to teachers, learners, and parents (Paulson, Paulson, & Meyer, 1991). As a form of assessment for learning, portfolios reveal incremental gains in listening, visual spoken communication, reading, and writing and provide space for multimodal artefacts

such as recorded performances, annotated transcripts, teacher observations, and learner reflections (Black & Wiliam, 1998). In contexts like Fako Division where linguistic diversity, limited specialised resources, and local attitudes shape education, portfolios have the potential to produce fairer, more actionable evaluations and to shift instruction toward the communication strengths of pupils with hearing impairment (Marschark & Spencer, 2010). The study that follows evaluates portfolio design, teacher supports, artefact selection, and practical barriers, with the aim of offering evidence-based recommendations for inclusive assessment practice in Fako Division and similar settings.

**Portfolio Assessment**

Portfolios have been used in fine arts and architecture for many years to display the work of their owners. (Heywood, 2000). A portfolio is a collection of various evidence of achievement of learning outcomes (Davis et al., 2001). In education, a portfolio is a purposeful collection of a pupil's work that exhibits their efforts, progress, and achievements in one or more areas (Paulson, Paulson & Meyer, 1991). This concept leads us to portfolio assessment, a method often used in academic and professional fields, where an individual's ability, progress, and achievement are evaluated through a review of a pre-selected collection of work known as a portfolio (Regoniel, 2023). It allows educators to observe and evaluate the pupil's language processing abilities in a variety of contexts, just as the tasks mentioned earlier do. Among the many assessment methods employed, portfolio assessment stands out for its holistic approach that links theory with practice (Regoniel, 2023). A portfolio can include various types of work, such as reports, examinations, projects, and observations. To effectively implement portfolio assessment, certain principles must be followed. These principles include:

***Collection of evidence****:* From multiple sources and throughout time, displaying the breadth and depth of a person's talent or advancement.

***Organization and presentation of the collected works***: This involves arranging the collected works in a logical and structured manner. The organization could be chronological (from oldest to newest), thematic (grouped by topics or subjects), or based on the type of work (essays, projects, tests, etc.). This is later presented in a way that eases visual appeal, readability, and overall user experience.

***Evaluating the portfolio*****:** Multiple reviewers are frequently involved to ensure impartiality and objectivity. Reviews may be based on predetermined criteria or rubrics, or on relative growth and development.

***Reflection*****:** The portfolio's structure encourages individuals to reflect on their learning progress and growth opportunities.

Portfolio assessments exist in a variety of formats, each customised to a certain goal. Portfolio assessments are classified into three types: assessment portfolios, work portfolios,

and learning portfolios. Each variety has distinct characteristics that make it appropriate for its intended application.

***Assessment portfolio***: Assessment portfolios, otherwise known as **evaluative portfolios**, contain work that has been evaluated according to set standards or criteria. These portfolios demonstrate a pupil's ability to meet specific learning standards. They often contain rubrics, test results, pupil reflections, teacher's notes, and graded assignments.

***Showcase Portfolio***: In contrast, a **showcase portfolio** displays a **student's best work.** Unlike an assessment portfolio, a showcase portfolio allows pupils to choose their best work, showcasing their highest level of learning and success. It may contain final drafts of assignments, projects, or other pieces of work that the pupil is particularly proud of. The purpose of a showcase portfolio is to provide a sense of accomplishment and to display one's best abilities (Regoniel, 2023).

***Learning Portfolio*:** Learning portfolios, also known as process portfolios, captures the pupil's learning process. Unlike other forms of portfolios, which emphasise the finished output, the learning portfolio focuses on the learning process and growth. This could contain drafts, revisions, mistakes, criticism, and thoughts on how the learner overcame obstacles and developed over time

The use of portfolio assessment, specifically the learning portfolio, in the evaluation of English language skills for pupils with hearing impairments is a promising field of research (Smith & Jones, 2020). A portfolio assessment, which is a compilation of pupils' work over time, provides a complete view of a pupil's progress, which is especially useful for pupils with hearing impairments. It enables instructors to assess pupils' understanding and application of English language skills in a variety of circumstances, rather than depending on traditional, often biased, assessment methods. The learning portfolio, which focuses on the process of learning, might be especially useful as it encourages pupils to reflect on their learning experiences, recognize their strengths and areas for progress, and establish personal learning objectives (Brown & Green, 2022). This active involvement in the learning process can boost the learner's motivation and engagement, resulting in better English language skills. Furthermore, the utilisation of learning portfolios can foster inclusivity. Learning portfolios can assist in breaking down barriers and building a more inclusive learning environment by recognising each pupil's learning journey and giving a platform for them to demonstrate their progress and achievements (Miller, 2024).

While portfolio assessment provides a unique platform for pupils to demonstrate their progress, achievements and create an inclusive learning environment, they also have issues and limitations; (portfolio assessment being demanding and time-consuming, listening in difficult conditions, etc.) which may prompt educators to consider alternative forms of informal assessment, such as play-based assessment, that could potentially offer a more comprehensive and holistic assessment of a pupil's language proficiency.

### Evaluating English Language Skills

Evaluating English language skills in children with hearing impairment requires an understanding of how linguistic components interact to support listening, speaking, reading, and writing. These skills are built on phonology, lexicon, syntax, and semantics, which do not always develop evenly when auditory access is limited. As a result, assessment must go beyond isolated test scores to examine how pupils perceive, process, and use language in both structured and functional contexts. Language is a cognitive system that enables individuals to construct and interpret meaning, and its evaluation must therefore consider both linguistic form and language use (Lidz & Perkins, 2018; Lightbown & Spada, 2013).

### Evaluation of Phonological Listening Skills

Phonology forms the basis of listening and spoken language because it involves the recognition and production of sound patterns in English. Phonological evaluation typically includes sound discrimination, phoneme identification, rhyme recognition, and production of consonants and vowels. These tasks indicate how accurately a child perceives and reproduces speech sounds. Children with hearing impairment often experience difficulty perceiving high frequency or low intensity sounds, which can affect phoneme discrimination and speech clarity (Fitzpatrick et al., 2016). Research shows that early access to hearing technology improves phonological outcomes, but continuous evaluation remains necessary to identify persistent gaps (Marschark & Spencer, 2010). Assessment must therefore attend to both sound perception and production, as phonological skills strongly influence reading and spelling development (Anthony & Francis, 2005).

### Evaluation of Lexical Skills

Lexical evaluation focuses on vocabulary knowledge and use across listening, reading, speaking, and writing. Vocabulary assessment typically examines receptive and expressive vocabulary, word retrieval, and understanding of word relationships. Vocabulary growth is closely linked to reading comprehension and overall academic achievement (Nation, 2001; Brown, 2020). Children with hearing impairment often experience slower vocabulary development due to reduced access to incidental language input, particularly for abstract and academic vocabulary (Fitzpatrick et al., 2016). Effective evaluation therefore considers not only the number of words a child knows but also how accurately and flexibly those words are used in context (Lightbown & Spada, 2013).

### Evaluation of Syntactic Skills

Syntax refers to the rules governing sentence structure and grammatical relationships. Evaluating syntactic skills involves examining sentence comprehension, sentence production, and the use of grammatical markers such as tense, plurality, and articles. These markers are often acoustically subtle and may be inconsistently perceived by children with hearing loss, leading to omissions or simplified sentence structures (Wicha et al., 2013). Language sample analysis and structured sentence tasks are commonly used to assess

syntactic competence and consistency. Syntactic performance provides important insight into both spoken and written English development (Davis, 2021).

**Evaluation of Semantic Skills**

Semantic evaluation focuses on meaning, including word knowledge, sentence interpretation, and discourse comprehension. Semantics enables learners to connect linguistic forms to concepts and real world knowledge (Wagner, 2010). For pupils with hearing impairment, assessment must examine understanding of literal and inferential meaning, figurative language, and relationships between ideas. Visual supports have been shown to enhance semantic understanding, particularly for abstract concepts (Hartman et al., 2019). Semantic skills are central to reading comprehension, written expression, and effective participation in conversations (Miller, 2022).

**Integrating Linguistic Components in Evaluation**

Phonology, lexicon, syntax, and semantics function as an integrated system that supports English language proficiency. Phonological skills support listening and decoding, vocabulary knowledge strengthens comprehension and expression, syntax enables sentence construction, and semantics allows meaning making across spoken and written texts (Johnson & Johnson, 2019; Brown, 2020). For pupils with hearing impairment, comprehensive evaluation must consider how reduced auditory access affects each component and their interaction. Integrating evidence across linguistic domains provides a more accurate and equitable profile of English language skills and supports informed instructional decision making.

**Hearing Impairment**

Hearing loss can be understood medically, educationally, and culturally. Medically it is described in degrees from slight to profound depending on measured thresholds in decibels (Ravi, n.d.). Educationally it is defined by its impact on learning and classroom performance; for example the Individuals with Disabilities Education Act uses the label hearing impairment to indicate a loss that adversely affects a child's educational performance. Culturally hearing loss can also describe a shared identity and community among people who are deaf or hard of hearing (Schiermer, 2000).

Sound reaches the brain through a chain of mechanical and neural events. Outer ear structures channel sound to the tympanic membrane. Vibrations are transmitted by the middle ear ossicles into fluid motion within the cochlea. Traveling waves in the cochlea stimulate hair cells of the organ of Corti which transduce mechanical energy into nerve impulses carried by the cochlear nerve to the brainstem and on to the primary auditory cortex. Only when this nerve impulses arrive at the cortical auditory area does the listener become consciously aware of sound (Riper & Erickson, 1996).

Hearing loss is commonly classified by degree and by type. Degree is measured in decibels and ranges from mild, which causes difficulty with quiet conversation especially in noisy environments, to profound, where even loud speech is not heard without technology. Typical classification bands commonly used in clinical descriptions include mild, moderate, severe, severe to profound, and profound and are reported as ranges such as 26 to 40 decibels or 41 to 60 decibels depending on the source (Hughes, 2019). Types of hearing loss include conductive, sensorineural, mixed, central, functional, and malingering when feigned loss is suspected (Thaigarajan & Arjunan, 2012).

Causes of hearing loss are varied and include aging, noise exposure, infections, ototoxic medications, genetic factors, trauma, and ear obstruction such as cerumen (Smith, 2005). Treatments range from medical and surgical interventions to hearing aids and cochlear implants, each of which can improve access to sound and support classroom learning when matched to a child's needs.

In Cameroon most documented cases are sensorineural. Recent local data indicate a high prevalence of sensorineural loss with rates reported between 61.7 percent and 94.4 percent in different series and with many affected people living in the Buea area of the Southwest region (Tingang et al., 2020; Regional Delegation of Social Affairs for the South West Region, 2020). The presence of specialist schools such as the Buea School for the Deaf has supported education through sign language and finger spelling, but limited sign language use among the hearing community presents challenges for social inclusion. This context has encouraged efforts to include learners with mild to moderate hearing loss in mainstream classrooms so they can develop both signed and spoken English and improve interaction with the wider community.

Assessment strategies must reflect these realities. Portfolio assessment offers a practical way to document language development over time by collecting work samples, recorded interactions, teacher observations, and learner reflections. Portfolios provide a richer picture of English ability for pupils with hearing loss and help teachers make informed instructional decisions that support inclusion and language access (Paulson, Paulson, & Meyer, 1991).

## Statement of the Problem

In many classrooms, traditional assessments (multiple-choice tests, essays under time limits, etc.) are ill-suited to pupils with hearing impairments. Such one-shot tests often fail to accommodate the unique communication needs of these learners, so their true abilities can be obscured. This situation underscores a need to explore alternative approaches. Informal strategies like portfolio assessment may provide more relevant insights into how deaf and hard-of-hearing pupils develop English skills. By reviewing multiple work samples and reflections, teachers can see ongoing progress rather than a single snapshot. Thus, the central problem is: How does using portfolio assessment alter the evaluation of English language skills among pupils with hearing impairment? This study addresses that question by isolating the portfolio strategy and measuring its impact on learners' performance.

### Objective

Determine the effectiveness of portfolio assessment strategy in evaluating the English language skills for pupils with hearing impairments.

### Research Question

How effective is portfolio assessment strategy in the evaluation of English language skills for pupils with hearing impairments?

### Hypothesis

**$H_0$**: Portfolio assessment strategy does not significantly impact the evaluation of English language skills of pupils with hearing impairment.

**$H_a$**: Portfolio assessment strategy significantly impacts the evaluation of English language skills of pupils with hearing impairment.

### Methodology

The study used a quasi-experimental design involving 39 pupils with varying degrees of hearing loss, 8 teachers and 2 headteachers in inclusive primary classrooms, 10 parents and 1 Divisional Delegate. One cohort experienced instruction with portfolio-based assessment, while a control cohort continued with standard evaluation methods. Data collection included classroom observations and structured interviews with classroom teachers, headteachers, parents, and the divisional delegate for basic education, focusing on assessment practices and pupil engagement. Teachers kept portfolios of each pupil's English work throughout the intervention period. Learner artefacts and portfolios were analysed for evidence of language development.

Quantitative data (scores from pre- and post-intervention English tests) were analysed with SPSS. Independent-samples *t*-tests compared experimental (portfolio) and control groups, and multiple regression assessed the predictive strength of the portfolio intervention. Qualitative data from interviews and observations were analysed thematically to identify how the portfolio approach influenced teaching practices and learner behaviour. The methodology ensured triangulation of results by combining numerical achievement data with rich narrative accounts from teachers and parents about portfolio use.

## Findings

**Table 1**

*Observations to Determine Learners with Hearing Impairments in the Different Categories*

| S/N | Categories | Description | Frequency | Percentage |
|---|---|---|---|---|
| **1** | Mild Hearing | • Difficulty hearing faint or distant speech. Can manage with minimal support. | 29 | 74.4 |
| **2** | Moderate Hearing | • Difficulty hearing conversational speech without amplification. | 4 | 10.3 |
| **3** | Severe hearing | • Can hear loud sounds but not conversational speech: Often requires assistive devices sign language. | 2 | 5.1 |
| **4** | Profound Hearing | • Relies entirely on visual communication (sign language, lip reading) or written text. | 2 | 5.1 |
| **5** | Mixed and additional needs | Hearing loss and other challenges (e.g. hearing disabilities, physical impairments) | 2 | 5.1 |
| | | | 39 | 100.0 |

Results in Table 1 reflect the observations made by the researcher to determine learners with hearing impairments in their various degrees. Learners with mild hearing impairment dominated the sample (74.4%), followed by those with moderate hearing impairment (10.3%). The other categories of severe, profound, and mixed additional needs were each represented by 5.1%.

**Table 2**

*Observations on Areas and Indicators Communication Skills*

| Aspects | Observation Notes | Possible Indicators | Frequency | Percentage |
|---|---|---|---|---|
| **Response to spoken language** | Learners respond when spoken to directly | Mild to moderate hearing loss if inconsistent. | 23 | 59.0 |
| **Use of sign language** | Learners use or rely on sign language | Severe or profound hearing loss | 2 | 5.1 |
| **Lip-reading** | Learners focus on the speaker's lips | Moderate to profound hearing | 8 | 20.5 |

| | | | | |
|---|---|---|---|---|
| **Use of amplification devices** | Learner wearing hearing aids or cochlear implants | Device-dependent hearing | 6 | 15.4 |
| **Total** | | | **39** | **100.0%** |

Table 2 above is based on observations on communication skills. Most of those identified with hearing impairments (59.0%) are related to responses to spoken language, 20.5% are associated with lip reading, 15.4% involve the use of amplification devices, and 5.1% involve the use of sign language. Each of these aspects is detailed in observation notes and possible indicators.

**Table 3**

*Listening Behaviours*

| Aspects | Observation Notes | Possible Indicators | Frequency | Percentage |
|---|---|---|---|---|
| **Attention to sound** | Learners react to sounds (e.g. doorbell) | Mild to moderate hearing | 23 | 59.00 |
| **Difficulty following oral instructions** | They need repeated instructions | Moderate to severe hearing | 16 | 41.00 |
| **Total** | | | **39** | **100.0%** |

Table 3 above is based on observations of listening behaviours. Most of learners with hearing impairments (59.0%) fall under the aspect of attention to sound. 41.00% were classified under the aspect of difficulty following oral instructions. Each of these aspects had observation notes and possible indicators.

**Table 4**

*Classroom Participation*

| Aspects | Observation Notes | Possible Indicators | Frequency | Percentage |
|---|---|---|---|---|
| **Group interaction** | The learners find it difficult to interact with peers | Difficulty may indicate communication barriers | 11 | 28.2 |
| **Ability to ask/answer questions** | They are either hesitant or confident in responding | Communication or auditory challenges | 17 | 43.6 |
| **Engagement in discussions** | The learner appears | This may indicate difficulty in | 11 | 28.2 |

| | | | | |
|---|---|---|---|---|
| | disengaged | understanding speech | | |
| **Total** | | | **39** | **100.0%** |

Table 4 above is based on observations on classroom participation. Under the aspect of ability to ask/answer questions, we have 43.6% of learners identified with hearing impairments. Group interactions and engagements in discussions each registered 28.2%.

**Table 5**

*Academic Performance*

| **Aspects** | **Observation Notes** | **Possible Indicators** | **Frequency** | **Percentage** |
|---|---|---|---|---|
| **Reading and writing skills** | They are on with peers | Severe hearing loss may impact literacy skills | 13 | 33.33 |
| **Understanding of verbal instructions** | They perform tasks correctly with clarification | Issues may signal auditory processing problems | 13 | 33.33 |
| **Use of technology** | The learner use text-based tools effectively | Profound hearing loss. Learners often excel here | 13 | 33.33 |
| **Total** | | | **39** | **100.0%** |

Results in Table 5 above is based on observations of Academic Performance: Under the various aspects considered viz, reading and writing skills, understanding of verbal instructions and the use of technology, each registered 33.33% of observed cases of pupils with hearing impairments. Each of the aspects was described with observations notes and possible indicators.

**Table 6**

*Behavioural and Social Indicators*

| **Aspects** | **Observation Notes** | **Possible Indicators** | **Frequency** | **Percentage** |
|---|---|---|---|---|
| Frustration or withdrawal | The learner avoids participation | Difficulty in communication or understanding. | 11 | 28.2 |
| Peer interaction style | They are isolated or actively engaged | May indicate comfort with current supports | 16 | 41.0 |
| Use of assistive resources | They do request or use additional support tools | Indicates awareness and adaptation needs | 12 | 30.8 |
| | **Total** | | **39** | **100.0%** |

Table 6 above is based on the observations on behavioural and social indicators; 41.0% of learners with hearing impairments were classified under peer interaction style, 30.8%

under the assistive resources while 28.2% fell under frustration or withdrawal. Each of these aspects has observation notes and possible indicators which describe the behaviour.

**Table 7**

*Additional Notes for Observation*

| **Aspects** | **Observation Notes** | **Frequency %** | | **Frequency %** | |
|---|---|---|---|---|---|
| | | Yes | Consistent | No | Consistent |
| **Environmental factors** | The classroom is acoustically friendly (minimal echo or noise) | 39 | 100.0 | ___ | ___ |
| **Support mechanisms** | Are hearing aids are accessible to all learners? | 6 | 15.4 | 33 | 84.6 |
| | Were learners observed on how they respond to provided supports like interpreters, captioning, or amplification devices? | 2 | 5.1 | 37 | 94.9 |
| **Parental input** | Did the observer consult parents or guardians for additional insights about the learner's hearing history and preferred communication mode? | 20 | 51.3 | 19 | 49.7 |

Table 7 above is based on some additional notes for observations. Under environmental factors, specifically the friendly nature of the classroom, 100.0% indicated "yes".

For support mechanisms, specifically accessibility to hearing aids, 15.4% registered "Yes" while 84.6% registered "No". Observation on supports like interpreters, amplification devices, and captioning, "yes" registered 5.1% while "No" registered 94.9%. This means that there is an acute lack of support. For parental inputs and particularly consultations with parents,51.3% said "Yes" while 49.7% said "No" This means that the researcher consulted more than half of the parents of children with hearing impairments.

**Table 8**

*Observation Checklist*

| **Category** | **Frequency of "Yes"** | **Percentage** | **Frequency of "No"** | **Percentage** |
|---|---|---|---|---|
| **Responds to verbal instructions without assistance** | 23 | 59.0 | 16 | 41.0 |
| **Uses amplification devices effectively** | 6 | 15.4 | 33 | 84.6 |
| **Relies on sign language or visual aids** | 16 | 41.0% | 23 | 54 |
| **Engages in group activities confidently** | 9 | 23.1 | 30 | 76.9 |

Based on the observation results on Table 8, above, most were seen to be able to respond to verbal instructions (59.0%). A very large portion (%) does not use amplification devices effectively. 41% rely on sign language or visual aids, and 76.9% do not engage in group activities confidently.

**Results of the Interview Conducted with Parents of Pupils with Hearing Impairments**

**Table 9**

*Awareness of Informal Assessment strategies*

| Response Option | Freq. | Percentage |
|---|---|---|
| No | 7 | 70.0 |
| Yes | 3 | 30.0 |
| **Total** | **10** | **100.0** |

Most parents (70%) are not aware of how their children are being assessed in school.

**Table 10**

*Parents Awareness of the Four Assessment Strategies Being Studied*

| Assessment Strategies | Freq. | Percentage |
|---|---|---|
| Not aware of Portfolio, | 6 | 60.0 |
| Aware of Portfolio, | 4 | 40.0 |
| **Total** | **10** | **100.0** |

Results on table 10 show that, 60% of parents are not aware of any informal assessment strategies, 40% of them are aware of some informal assessment strategies like portfolio. This means that, in a large scale, parents are not aware of the informal assessment strategies for pupils with hearing impairments.

**Results of the Interview Conducted with Head teachers of Inclusive Schools with Pupils with Hearing Impairments**

**Support for informal Assessment strategies**

**Table 11**

*Responses on Whether or not School Teachers are encouraged to Use Informal Assessment strategies*

| Response Options | Freq. | Percentage |
|---|---|---|
| Yes | 5 | 100.0 |
| No | --- | 0.0 |
| **Total** | **5** | **100.0** |

All the headteachers (100%) admitted that their schools encourage the use of informal assessment approaches as seen in the Table 11

**Table 12**
*Responses on How Helpful the Various Assessment strategies are*

| Assessment Approaches | Scale of Response | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Very helpful | | Moderately helpful | | Slightly Helpful | | Not Helpful | |
| | f | % | f | % | f | % | F | % |
| Portfolio | 4 | 80.0 | ---- | ---- | 1 | 20.0 | ---- | --- |

Results on Table 12 show that 80% of interviewees said that portfolio assessment is very helpful, while 20% believed that it is slightly helpful. Translating the results above into a table…by using a weighting scale of very helpful = 4pts, moderately helpful = 3pts, slightly helpful = 2pts, and not helpful = 1pt, the following is arrived at.

**Table 13:**
Evaluating the Results on Table 12

| Assessment Approach | Scale and Ratings | | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|
| | Very helpful | | Moderately helpful | | Slightly helpful | | Not helpful | | |
| | F | Weight | F | Weight | f | Weight | F | Weight | |
| **Portfolio** | 4 | 16 | --- | --- | 1 | 2 | ____ | ---- | 18 |
| **Dynamic** | 1 | 4 | 4 | 12 | ---- | ---- | ---- | ---- | 16 |
| **Real life language task** | --- | --- | 1 | 3 | ---- | ---- | 4 | 4 | 7 |

The results on table 13 above show that portfolio assessment is evaluated at 18 points. This means that portfolio was rated as very helpful informal assessment strategy.

**Summary findings on the Interview with Head Teachers**

The results show that,

- Teachers are encouraged to use portfolio assessment for pupils with hearing impairments.
- Head teachers support the use of the following assessment strategies: Portfolios in evaluating English Language skills for learners with hearing impairment.

**Findings of the Interview Conducted with the Divisional Delegate of Basic Education, Fako**

**Table 14**
*Impressions of the Divisional Delegate on Informal Assessment Strategies*

| Major Theme | Sub-Themes | Response |
|---|---|---|
| Awareness and policy | Awareness of inclusive schools implementing informal assessment strategies | Yes |
| | Availability of policies encouraging the use of the following assessment strategies?<br>-Portfolio | Yes for Portfolio |
| Observed Outcomes | Effectiveness of informal assessment strategies in English language skills for hearing impairments | Effective |
| | Observed challenges in schools | Lack of teacher training, limited resources, lack of monitoring and evaluation |

Results in able 14 show that there is awareness and a policy document on the implementation of informal assessment strategies in inclusive schools. Despite several challenges, the outcomes of these strategies are effective.

**Results of the interview conducted with classroom teachers**

**Table 15**
***Usage of Informal Assessment Strategies in Classroom***

| Assessment Strategies | Frequency | Percentages |
|---|---|---|
| We do not use the portfolio assessment strategies | 7 | 70.0 |
| 1 use portfolio strategies | 3 | 30.0 |
| **TOTAL** | **10** | **100.0** |

Results in table 15 show that most teachers (70%) do not use any of the four informal assessment strategies. 30% use the portfolio assessment strategy.

**Table 16**
***Effectiveness on the Use of Informal Assessment Strategies***

| Assessment Strategy | Level of Effectiveness | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Very Effective | | Effective | | Ineffective | | Ineffective | | Very Ineffective | | Missing | Data |
| | f | % | f | % | f | % | f | % | f | % | F | % |
| Portfolio | 1 | 10.0 | - | - | - | - | - | - | - | - | - | - |
| None | - | - | - | - | - | - | - | - | - | - | 6 | 60.0 |

Since this assessment strategy is never used by the classroom teachers as demonstrated by results on table…., most of them (60%) could not determine their effectiveness as then on table…. above.

**Table 17**
*Degree of Impact*

| Statement | Magnitude of Impact | | | | | |
|---|---|---|---|---|---|---|
| | Always | | Sometimes | | Never | |
| | f | % | F | % | F | % |
| Reviewing portfolios help me assess English language progress of pupils with hearing impairment | - | - | 6 | 60.0 | 4 | 40.0 |

Although most classroom teachers do not use portfolio assessment as seen in Table 16 and could not assess their effectiveness as seen in Table 16, after the researcher described the activities involved in each strategy, they could say the degree of impact as seen in Table 16. Most interviewees admitted that portfolio assessment strategy examined in this research will always or sometimes significantly aid in evaluating pupils with hearing impairments.
The respondents to the interview stated the following as challenges they will face in implementing informal assessment strategies:

1) Lack of sufficient knowledge
2) Lack of resources
3) Time constraints
4) Difficulties in engaging pupils

**Research Question: How effective is portfolio assessment strategy in the evaluation of English language skills for pupils with hearing impairments?**

**Table 18**
*Summary of Themes and Sub-Themes Generated from the Responses to Research Question 2*

| S/N | Themes | Sub-Themes |
|---|---|---|
| **1** | Improved instructions | -Eases teaching and learning.<br>-Teachers can follow up and determine improved English skills among learners with hearing impairments.<br>-Capture expressive language growth amongst pupils with hearing impairments.<br>-Facilitates complex instructional strategies amongst pupils with hearing impairments. |
| **2.** | Improves motivation | -Pupils' thoughts about their learning is easily seen and followed up.<br>-Motivates learners with hearing impairments to learn better when pictures and videos are used<br>-Encourages self-reflection which can boost confidence and give the child a view of English ability. |
| **3.** | Enhanced Quality assessment by teachers | -Helps teachers evaluate flexibility due to multiple context (videos, pictures etc).<br>-Pictures and videos help assess the speaking skills of |

| | | |
|---|---|---|
| | | learners with hearing impairments.<br>-Tracks progress amongst learners with hearing impairments overtime.<br>-Shows diverse skills of learners. |
| **4.** | Learning autonomy is encouraged | -Promotes pupils with hearing impairment ownership of their scores during assessment.<br>-Provides evidence of strength and accountability<br>-Individual progress amongst pupils with hearing impairments is easily determined. |

**Response to Research Question**

From the summary table 18 above, portfolio assessment strategies with pupils suffering from hearing impairments significantly affect the evaluation of English language skills through the following major themes:

Improved instructions and subsequently improved assessment strategies
Improved motivation to learn amongst the testees.
Enhanced quality assessment by teachers.
Learning autonomy by the pupils is encouraged, followed by their assessment.

These major themes generated several sub-themes, amongst which the researcher detected the following ones:

Facilities complex instructional strategies against pupils with hearing impairments.
Encourages self-reflection, which can boost confidence and give children with hearing impairments a view of their English ability.
Helps teachers' assessments to be more flexible among pupils with hearing impairments due to multiple contexts (pictures, videos, etc.)
Provides evidence of strength and accountability.

**Recommendation to Render Portfolio Assessment Strategy More Effective**

The portfolios should be updated regularly.
Let the portfolios look interactive and interesting.
Modern technology should be used in producing portfolios. This will make them attractive.
Video recordings could be used and incorporated as part of the portfolios.
Training of teachers in inclusive schools on how to produce and use portfolios is paramount for effective assessment of pupils with hearing impairments.
Training of teachers to integrate multiple subjects like science, mathematics, drawing on portfolios will ease their assessment strategy.

**Testing Hypothesis**

**$H_0$:** Portfolio assessment strategy does not significantly impact the evaluation of English language skills of pupils with hearing impairment.
**$H_a$:** Portfolio assessment strategy significantly impacts the evaluation of English language skills of pupils with hearing impairment.

**Table 19**
*Summary of Student t-test Analyses for Hypothesis : SPSS version 30, Atlanta Computation on the Performance of Pupils in the Experimental and Control Groups*

| School Class | Grp | N | Mean (X) | Std. Dev. | Std. Error | df | t-comp. | t-crit | Conf. | Direction |
|---|---|---|---|---|---|---|---|---|---|---|
| **GS Bota Level 2 pupils** | Exptal | 18 | 12.780 | 0.0717 | 0.148 | 38 | 2.919 | 1.686 | 95% | One tailed |
| **GS Upper Costain Level 2 pupils** | Control | 21 | 11.142 | 0.0936 | 0.235 | | | | | |

α-level = 0.05

**Verification of Hypothesis**

At a confidence level of 0.95% with degree of freedom 38, for the experimental and control groups, the t-computed value (2.919) is greater than the t-critical value (1.686) for a one-tailed hypothesis. This led to the rejection of the null hypothesis (Ho), following the decision rule and the retention of the alternative hypothesis. Inferences made led to the conclusion that pupils with hearing impairments exposed to portfolio assessment strategies perform significantly better than their peers who are exposed to the normal assessment strategies in class.

**Multiple Regression Analyses**

A multiple regression analysis was conducted to examine the effects of the predictors (informal strategies) on the assessment of pupils with hearing impairment.

**Treatment of Raw Data**
**Table 20**
*Response Format and Weighting Scale*

| Type of Statement | Response Options and Association Scores | | |
|---|---|---|---|
| | Always | Sometimes | Never |
| Positive | 3 | 2 | 1 |
| Negative | 1 | 2 | 3 |

The response format above was used to convert the responses to the items related to the response options above into scores before establishing them into Excel data sheets.
Any respondent to a positive statement who ticked “Always”, scored 3 points, “Sometimes” scored 2 points, and “Never” scored 1 point. The reverse was true for negative statements with “Always” attracting 1 point, “Sometimes” scoring 2 points and “Never” scoring 3 points. The total score for the variable (portfolio), which is the predictor, was converted on 20, establishing the Excel data sheet before subjecting to multiple regression analysis, The coefficients for the prediction in the regression model are presented in the table that follows.

**Table 21**
*Coefficients of Predictors in a Multiple Regression Analyses*

| Predictor | 'B | Std Error | Beta | P |
|---|---|---|---|---|
| • Portfolio informal strategy | 0.241 | 0.010 | 0.336 | <.001 |

The unstandardized coefficient **(B.)** indicates the amount of change in the dependent variable (assessment of pupils with hearing impairments) for a one unit change in the predictor variable (portfolio strategies) holding the other predictor constant. The standardised coefficients **(Beta)** provide a measure of the strength of the relationship between each predictor and the dependent variable.

The coefficient for portfolio is B= 0.241, P<.001. This shows that, for each one-unit increase in portfolio informal strategy, the assessment of pupils with hearing impairments reflected in their performance at the post-test level increases by 0.241 units, holding other predictors constant.

**Discussion**

The findings of this study revealed that portfolio assessment strategies fostered continuous tracking of individual progress, promoted self-reflection, and enhanced teacher feedback loops. Thematic summaries show that portfolios improved instruction and learner engagement. Teachers emphasized that portfolios made teaching and learning more effective by organizing pupils' work over time: they could "follow up and determine improved English skills" through pictures and writing samples. Seeing their own progress in a portfolio encouraged pupils. This approach also gave teachers richer evidence to assess speaking, writing, and comprehension in context. As one sub-theme noted, portfolios "capture expressive language growth" and help track diverse skills. In practice, learners took ownership of their work and enjoyed including creative projects, which translated into greater confidence and participation compared to the static formats of traditional tests.

The statistical data confirm that portfolios yield tangible gains. The portfolio group attained a mean score of 12.780, significantly higher than the control group's mean of 11.142. The t-test yielded $t = 2.919$ ($p < .05$), leading to the conclusion that portfolio-based learners performed significantly better than peers assessed by normal methods. This nearly 1.64-point gain highlights the practical impact of portfolios. Pupils were not only more engaged, but this engagement translated into higher English achievement than pupils evaluated in standard ways. The consistent improvement is further supported by regression results: the portfolio strategy had $\beta = 0.336$ ($p < .001$), indicating a strong unique contribution to language outcomes. Overall, the convergence of interview themes and quantitative evidence suggests that portfolios by integrating multimedia and self-reflection significantly elevate both the engagement and measured proficiency of hearing-impaired English learners versus traditional tests.

It is supported by Rostami, Jahandar & Khodabandehlou (2012), who state that by gathering multiple samples of work over time, the portfolio provides a more holistic and formative picture of each pupil's development than a one-off test. This approach not only allows for the collection of diverse evidence of a pupil's abilities and progress but also highlights the evolution of their skills across various contexts. A portfolio, as opposed to a single assessment, captures the nuances of learning experiences and can reflect a pupil's creativity, critical thinking, and problem-solving aptitude. Furthermore, it encourages self-reflection and ongoing assessment, enabling teachers to tailor their strategies to meet individual needs effectively. Thus, a portfolio serves as a dynamic tool for both pupils and educators, facilitating a deeper understanding of learning trajectories over time rather than relying solely on the snapshot provided by a single test. It is further supported by Vygotsky's Social Constructivism theory, which emphasizes the importance of collaborative learning for people. It shows that knowledge isn't just something we gain alone; it's built through conversations and interactions with others and our environment. When portfolios are used in the classroom, they create a space for meaningful discussions between teachers and pupils. By reviewing work together, pupils receive support that helps them think more deeply about their learning. The process of pupils collecting their work, revisiting, and revising it aligns closely with Vygotsky's idea of mediated learning.

This approach encourages pupils to reflect on their thoughts and express their ideas in a safe environment. Through this dialogue and revision, pupils aren't just improving what they know; they're also developing their language skills as they explain their thoughts and engage in conversations that challenge and expand their understanding. Overall, this teamwork between teachers and pupils creates a positive learning environment that fosters growth, reflection, and connection. The findings are consistent with Marschark & Spencer (2015), who conducted research highlighting the importance of portfolios in educational settings, particularly for deaf pupils, their findings indicate that portfolios are effective tools for tracking the progressive development of vocabulary, grammar, and literacy skills over time. This is further supported by Katz & Schery (2006), who emphasised that portfolios' ability helps to document milestones in multimodal communication. By capturing a diverse array of formats such as written pieces, visual artefacts, and digital media, portfolios create a comprehensive narrative of an individual's learning journey and progress. Our findings align with these studies because teachers used portfolios to identify patterns in mistakes, support their teaching, and celebrate small language successes.

**Recommendations**

- **Regular Updates and Multimedia Integration**: Teachers should ensure that portfolios are maintained regularly and kept engaging. Including pictures, audio or video recordings, and interactive elements will make portfolios more attractive and representative of each pupil's strengths. For example, incorporating short sign-language video reflections or digital storytelling can showcase students' English use in ways traditional tests cannot.

- **Use of Technology**: Modern educational technology should be leveraged to create dynamic, interactive portfolios. Tools like tablets or presentation software can allow pupils to include multimedia projects. Video recordings of classroom presentations or group discussions should be added to portfolios, as recommended by participants.
- **Teacher Training**: Schools must train teachers in inclusive portfolio use. Workshops and collaborative planning sessions can help teachers learn how to design, manage, and interpret portfolios for deaf learners. Emphasis should be on selecting diverse tasks (across subjects like science, math, art) for inclusion, so that portfolios reflect all aspects of a pupil's learning.
- **Curricular Integration**: Portfolios should be integrated across subjects. Teachers can coordinate so that a single portfolio contains work from English, science, drawing, etc., providing a comprehensive view of a pupil's abilities. This cross-disciplinary approach can reduce redundancy and highlight transferable skills.

By following these recommendations, educators can make portfolio assessment a powerful, student-centred component of instruction, ensuring hearing-impaired pupils' English skills are evaluated more effectively and fairly.

## Conclusion

Portfolio assessment had a clear positive impact on evaluating English skills of pupils with hearing impairments in Fako Division. Pupils assessed via portfolios showed significantly greater gains and confidence than those with traditional testing. By incorporating multimedia work and student self-reflection, portfolios functioned as dynamic tools that revealed learners' progress over time. They complemented formal testing by providing rich, longitudinal evidence of ability. In essence, portfolios did not merely produce higher test scores, they transformed the evaluation process to be more inclusive and reflective of individual learning journeys. These results suggest that embracing portfolio assessment can lead to more equitable and effective English language instruction in inclusive schools. Going forward, schools should view portfolios as an integral part of curriculum planning and reporting, since our study found that portfolio use "significantly elevates both engagement and measured proficiency" in deaf learners.

## References

Anthony, J. L., & Francis, D. J. (2005). Development of phonological awareness. *Current Directions in Psychological Science,* 14(5), 255–259. https://doi.org/10.1111/j.0963-7214.2005.00376.x

Black, P., & Wiliam, D. (1998). Assessment and classroom learning. *Assessment in Education: Principles, Policy & Practice,* 5(1), 7–74. https://doi.org/10.1080/0969595980050102

Brown, H. D. (2004). *Language Assessment: Principles and Classroom Practices*. Longman.

Chu, S., & Flores, S. (2011). Assessment of English language learners with learning disabilities. The Clearing House: *A Journal of Educational Strategies, Issues and Ideas*, 84(6), 244–248. https://doi.org/10.1080/00098655.2011.590550

Davis, B., & Francis, K. (2021). Discourses on learning in education: Making sense of a landscape of difference. *Frontiers in Education*, 6. https://doi.org/10.3389/feduc.2021.760867

Davis, R., Pfeiffer, S., Kellogg, E., Hern, C., McLaughlin, T. F., & Curry, G. (2001). *The effect of the Davis Learning Strategies on first grade word recognition and subsequent special education referrals*. Reading Improvement, 38(2), 74–84.

Fitzpatrick, C., Oghia, M. J., Melki, J., & Pagani, L. S. (2016). Early childhood exposure to media violence: What parents and policymakers ought to know. *South African Journal of Childhood Education*, 6(1), Article a431. http://dx.doi.org/10.4102/sajce.v6i1.431

Hamp-Lyons, L., & Condon, W. (2000). *Assessing the Portfolio: Principles for Practice, Theory, and Research*. Hampton Press.

Hartman, R. J., Townsend, M. B., & Jackson, M. (2019). Educators' perceptions of technology integration into the classroom: A descriptive case study. *Journal of Research in Innovative Teaching & Learning*, 12(3), 236–249. https://doi.org/10.1108/JRIT-03-2019-0044

Heywood, J. (2000). *Assessment in higher education: Student learning, teaching, programmes and institutions.* Jessica Kingsley Publishers.

Hughes, J. E. (2019). Learning across boundaries: Educator and startup involvement in the educational technology innovation ecosystem. *Contemporary Issues in Technology and Teacher Education,* 19(1), 62–96.

Johnson, K., & Johnson, H. (2019). Foundations of language and literacy development. Routledge.

Katz, L., & Schery, T. (2006). Including children with hearing loss in early childhood programs. *Young Children, 61*(1), 86–95.

Lidz, C. S., & Perkins, J. M. (2018). *Assessment and intervention in language development*. Springer.

Lightbown, P. M., & Spada, N. (2013). *How languages are learned* (4th ed.). Oxford University Press.

Marschark, M., & Spencer, P. E. (Eds.). (2015). *The Oxford Handbook of Deaf Studies, Language, and Education* (Vol. 2). Oxford University Press.

Miller, E. (2024). A salute to the Caribbean Journal of Education and Development. Caribbean *Journal of Education and Development*, 1(1), 1–4. https://doi.org/10.46425/cjed201017073

Miller, G. A. (2022). *Meaning and language comprehension*. Cambridge University Press.

Nation, I. S. P. (2001). *Learning vocabulary in another language*. Cambridge University Press.

Paulson, P. R., Paulson, F. L., & Meyer, C. A. (1991). What makes a portfolio a portfolio? *Educational Leadership, 48*(5), 14–18.

Pizzo, L., & Chilvers, A. (2016). Assessment and d/Deaf multilingual learners: Considerations and promising practice. *American Annals of the Deaf, 161*, 56–66.

Pizzo, L., & Ford, L. (2011). Developing a comprehensive linguistic profile to support learning: The assessment of d/Deaf and hard of hearing multilingual learners. In J. Cannon & C. Guardino (Eds.), *Deafness and Diversity: Supporting Learners Who Are d/Deaf or Hard of Hearing Multilingual Learners*. Gallaudet University Press.

Qi, S., & Mitchell, R. E. (2011). Large-scale academic achievement testing of deaf and hard-of-hearing students: Past, present, and future. *Journal of Deaf Studies and Deaf Education, 17*(1), 1–18.

Regional Delegation of Social Affairs for the South West Region. (2020). Report on hearing loss cases, 2016 to 2020.

Rostami Charvade, M., Jahandar, S., & Khodabandehlou, M. (2012). *The impact of portfolio assessment on EFL learners' reading comprehension ability.* English Language Teaching, 5(7), 129–139. https://doi.org/10.5539/elt.v5n7p129

Samad, A. A., Kaur, C., & Singh, S. (2013). The use of portfolio as an assessment tool in the Malaysian L2 classroom. *International Journal of English Language Education, 1*(1), 94–108.

Shokraie, S., & Tabrizi, A. (2016). The effect of portfolio assessment on EFL learners' L2 writing performance. *Journal of Applied Linguistics and Language Research, 3*(5), 321–331.

Smith, R., & Jones, P. (2020). *Evaluating the effectiveness of traditional versus modern language assessments. Assessment in Education*, 16(4), 289–305

Sulistyo, K. P., Eltris, N., Mafulah, S., Budianto, S., Saiful, S., & Heriyawati, D. F. (2020). Portfolio assessment: Learning outcomes and students' attitudes. *Studies in English Language and Education, 7*(1), 141–153. https://doi.org/10.24815/siele.v7i1.15569

Tabatabaei, O., & Assefi, F. (2012). The effect of portfolio assessment technique on writing performance of EFL learners. *English Language Teaching, 5*(5), 138–147. https://doi.org/10.5539/elt.v5n5p138

Tahriri, A., Sabet, M. K., & Aeineh, A. (2014). The effect of portfolio assessment on learning idioms in writing. *International Journal of Education & Literacy Studies, 2*(2), 53–57.

Taki, S., & Heidari, M. (2011). The effect of using portfolio-based writing assessment on language learning: The case of young Iranian EFL learners. *English Language Teaching, 4*(3), 22–23.

Tan, T. K. (2023). Informative hypothesis for group means comparison. *Practical Assessment, Research, & Evaluation,* 28(1). https://scholarworks.umass.edu/pare/vol28/iss1/1/

Tingang, E. W., Noubiap, J. J., Fokouo, J. V. F., Oluwole, O. G., Nguefack, S., Chimusa, E. R., & Wonkam, A. (2020). *Hearing impairment overview in Africa: The case of Cameroon.* Genes, 11(2), 233. https://doi.org/10.3390/genes11020233

Van Riper, C., & Erickson, R. L. (1996). *Speech correction: An introduction to speech pathology and audiology* (9th ed.). Allyn & Bacon.

Wagner, R. K. (2010). Semantic development and language comprehension. *Language and Cognitive Processes, 25*(7–9), 1056–1073.

Wicha, N. Y. Y., Moreno, E. M., & Kutas, M. (2013). Anticipating words and their grammar. *Journal of Cognitive Neuroscience, 15*(7), 106–107