

## The relationship between learners' performance in English and Natural Science and Health Education: A case of Grade 7 learners at School A, Oluno circuit, Oshana region, Namibia

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### **Abstract**

*The study was fuelled by poor performance in Natural Science and Health Education (NSHE) which was allegedly attributed to the poor performance in English. Consequently, the study sought to answer the following research questions: How does the performance of Grade 7 learners in English at School A compare to that of NSHE? What is the relationship between the performance of Grade 7 learners in English and NSHE at School A? The findings of the study revealed that learners performed better in English than in NSHE. Also, in terms of the relationship between learners' performance in English and NSHE the results showed that there was a strong positive correlation with the value of the person's correlation coefficient of 0.754661. Learners' performance in NSHE can be explained by their performance in English up to 57%. It was settled that learners performed better in NSHE than English. Additionally learners who performed better in English also performed better in NSHE. The study recommended that English and NSHE teachers could share ideas on how to integrate language skills in their lessons in order to improve learners' performance and promote cross-curricular teaching.*

**Keywords:** learners' performance, English, NSHE, comparison, learners' scores

### **Background of the study**

In Namibia, English appears to be a challenge (Sibanda, 2016). Some learners struggle to pass it up to high school. About 8,632 learners out of 22,091, who sat for the Grade 12 Namibia Senior Secondary Certificate (NSSC) Ordinary Level in 2020, qualify for admission to tertiary institutions (Ministry of Education, 2018, as cited in Nakale, 2018). If some of these learners will eventually become teachers; therefore, they may not express themselves in English. This will trickle down to their learners once they join the teaching profession. In this case, some of the learners may not understand other subjects which are taught in English. The Grade 7 Natural Science and Health Education (NSHE) syllabus is taught in English and as a result this may affect these learners'

ability to understand the subject. The fact that many learners experience problems in NSHE could to some extent compromise their understanding of NSHE. The relationship between the learners' performance in English and NSHE remains fold, hence a need to inquire into what kind of a relationship exists between the English and NSHE scores.

This study was underpinned by the Critical Theory (CT) pioneered by Max Horkheimer at the Institute for Social Research in the late 1800s. Critical theory pursues to apprehend how human values are affected by the hegemonic oppressive powers. Critical theory claims that the truth very often serves the status quo, i.e. the truth is made and unmade by human beings (Venter, Higgs, Jeevavanthan, Letseka, &

Mays, 2007). For instance the mere fact that the learners are forced to learn science in some foreign language called English implies some oppression since even the examples they will get may be out of their cultural and social contexts.

Venter, Higgs, Jeevavanthan, Letseka, and Mays (2007) further content that critical theory perceives a link between power and human thought. This implies that the critical theorists hold the argument that human societies are structured around some power relationships such as the language of instruction being imposed on the learners as opposed to their vernacular appears to suggest that English is superior to the mother tongue to be a power relation. This henceforth means that power dominates all forms of knowledge inclusive of moral and normative knowledge. The thrust of the critical theory is to free and protect humankind from hegemonic powers of oppression. Thus the fact that lack of comprehension in written and spoken English was found somehow inhibits learning in NSHE the study recommended freedom from this kind of oppression.

Paulo Freire, one of the legendary critical theorists contributes to the issue of education of the oppressed as cited in Freire (1993); by perceiving education as a tool for oppression. According to Freire (1993), education is a tool of oppression due to the mere fact that education is a tool in the hands of the powerful to oppress the powerless. Thus by recommending the use of a medium of communication in which the learners comprehend very well appears to liberate and empower the learners in order to excel in their studies.

### **Research questions**

The study sought answers to the following questions:

1. How does the performance of Grade 7 learners in English compare to that of

Natural Science and Health Education at School A?

2. What is the relationship between the performance of Grade 7 learners in English and Natural Science and Health Education at School A?

### **Literature review**

#### ***English as a medium of instruction in Namibia***

In most countries in the world where education is offered through a foreign language as a medium of instruction the pass rate is usually low. Also, the number of drop-outs is unusually high because the switch to the foreign language occurs too early in the child's education (Cluver, 2010). Namibia is not spared in this case because it uses English which is a foreign language as a medium of instruction. Therefore, this could be the contributing factor to learners' poor performance in English.

Educators in Sub-Saharan African classrooms are alerted to the poor school achievement resulting from teaching and learning through a European language (Clegg & Afitska, 2011). Namibia being part of Sub-Saharan Africa is experiencing the same problem of poor academic performance which could be due to the language barrier and if this language barrier is not attended to immediately, might cause harm to children's future as well as to the country's economy. According to Uys, Walt, Berg, and Botha (2007), Namibia follows one of the strictest English medium of instruction policies in Africa since it is compulsory after Grade 3, this came about from independence. The selection of English in Namibia was propelled by the fact that less than 5 per cent of the population speak English as a mother tongue (Cluver, 2010). Therefore, no ethnic group can feel that their language is superior to others among the indigenous ethnic groups thus the English language was introduced as a

medium of instruction together with the new beginning of the Namibian nation. As in other African independent states, the choice of official language fell on English. The Ministry of Education Language Policy for Schools in Namibia (2003) states that education should promote the language and cultural identity of learners through the use of mother tongue as a medium of instructions in grades 1-3 and the teaching of mother tongue throughout the formal education with Grade 4 as the transitional year.

In line with the above, the revised National Curriculum for Basic Education as articulated by Ministry of Education (2010) is also in line with the language policy of Namibia that English should be the language of instruction from the fourth grade of primary school. English is a compulsory school subject that must be passed at all levels of education in Namibia. Therefore, it can be assumed that learners have to decode English into their mother tongue and then reinterpret their thoughts into English and as a result create a considerable potential for misinterpretation to occur.

### ***Challenges of using English as a medium of instruction***

Stephen, Welman, and Jordaan (2004) note that while academic staff may consider English as a major cause of academic difficulties; learners often feel that they experience few problems with English language. This indicates that many learners have low awareness of their specific problems in this regard. Factors inhibiting English language proficiency or performance noted by Stephen et al. (2004) include rural environment, that is, in some rural areas, English is almost a foreign language. Where English proficiency exists as a literal rather than an inferential level and where meaning interaction with English is rare.

In terms of school teacher English proficiency, some teachers are young, frequently inexperienced, and often under qualified. Although they are taught pedagogy, once in the classroom, they revert to the inefficient rote learning systems in which they were taught. This approach results in high levels of learner passivity. In this manner teachers discourage learners to ask questions. Many rural teachers themselves have low levels of English proficiency, although they are required to teach in English, they teach in the vernacular and hand out summaries and notes in English which the learners are required to (rote) learn. Therefore, it is reasonable to argue that unless teachers' English language proficiency improves, this situation is unlikely to improve as learners have little to learn from their teachers.

Problems regarding speaking, reading and writing in English also exist. That is, poor English language spoken and reading skills may impact adversely on English writing skills. It is possible to be fairly fluent in spoken English but be inadequate in writing. The ability to read rapidly and understand content could be critical for academic success. Speaking, reading and writing are interrelated; therefore, weakness in either one reduces comprehension levels (Stephen et al., 2004). This may also compromise the performance of these learners to some extent.

### ***Performance of learners in Natural Science and Health Education (NSHE)***

Academic success is not purely the application of intellectual capacity as many factors directly or indirectly affect academic success (Stephen et al., 2004). SHE achievement maybe influenced to a greater extent by background influences. This may occur because teachers and learners rely more on the instructional language when they are being taught or

assessed in NSHE as a school subject. If a learner has difficulty understanding the language of instruction, the potential for academic success is at best circumscribed (Stephen et al., 2004). If a learner does not understand English as a subject and it is the medium of instruction, this learner is likely to perform low in NSHE as well as in other subjects that are taught in English.

Prinsloo, Rogers, and Harvey (2018) indicate that while learners may be able to speak English, they still do not operate at maximum capacity because of the language barrier. Therefore, in addressing these barriers there is a need to identify possible contributing issues.

Uys et al. (2007) suggest that teachers need to be made aware of how to recognise and optimise language-teaching opportunities in the content classroom. The NSHE teachers may think that it is the responsibility of language teachers to teach language skills, but it is the responsibility of all teachers to include language skills in their lessons.

### ***Performance of learners in English versus Natural Science and Health Education***

Poor English proficiency frequently compromises the academic achievement of learners (Manyike & Lemmer, 2015). Therefore, for learners to perform well in NSHE they need to be able to speak, read and write English proficiently. English second language learners who wish to use English as an academic language need to know about 5000 individual word forms in order to comprehend 95% of an academic text (Wilsenach, 2015). This means if a learner only knows a few words he or she may perform poorly in a subject. Additionally, Namibian learners especially those in rural areas appear to know fewer words in English consequently negatively affecting their academic performance since they cannot communicate effectively in English which is the medium of instruction

(Stephen et al., 2004). Prinsloo et al. (2018) found that more than half the overall effect on Science scores was attributed to language, even beyond learners' attendance of well-resourced schools and/or being from privileged homes. This indicates that even if learners are in a well-resourced school and English performance is poor, they are likely to perform poorly in all school subjects.

Adika and Quartey (2016) in their research established a strong positive correlation between English proficiency levels and academic performance. Therefore, it can be argued that high levels of English language proficiency may be a critical factor in achieving academic success. In the Namibian context it is still unknown as to whether the learners' performance in English relates to their performance in NSHE. Having given the foregoing background, this study anticipates unfolding whether or not a relationship exists between the learners' grades in English and NSHE.

### **Methodology**

A quantitative research approach was used in this study. Maree (2007) defines quantitative research as a process that is systematic and objective in its ways of using numerical data from only a selected subgroup of a universe (or population) to generalizing the findings to the universe that is being studied. Quantitative research is associated with numerical induction in that it "relies upon measurement, utilizes statistics and will mean the same thing in different social, cultural and linguistic settings" (Bless & Higson Smith, 2000, p.38). The Correlational Statistics and the five-point summary used were quantitative; hence this is a quantitative study. Moreover, this study was correlational in nature since it compared and established the relationship between the performance of learners in English and NSHE. A correlational study determines whether or

not two variables are correlated (Siddharth, 2011). This means to study whether an increase or decrease in one variable corresponds to an increase or decrease in the other variable. This was done to gather data that would yield answers to research question two.

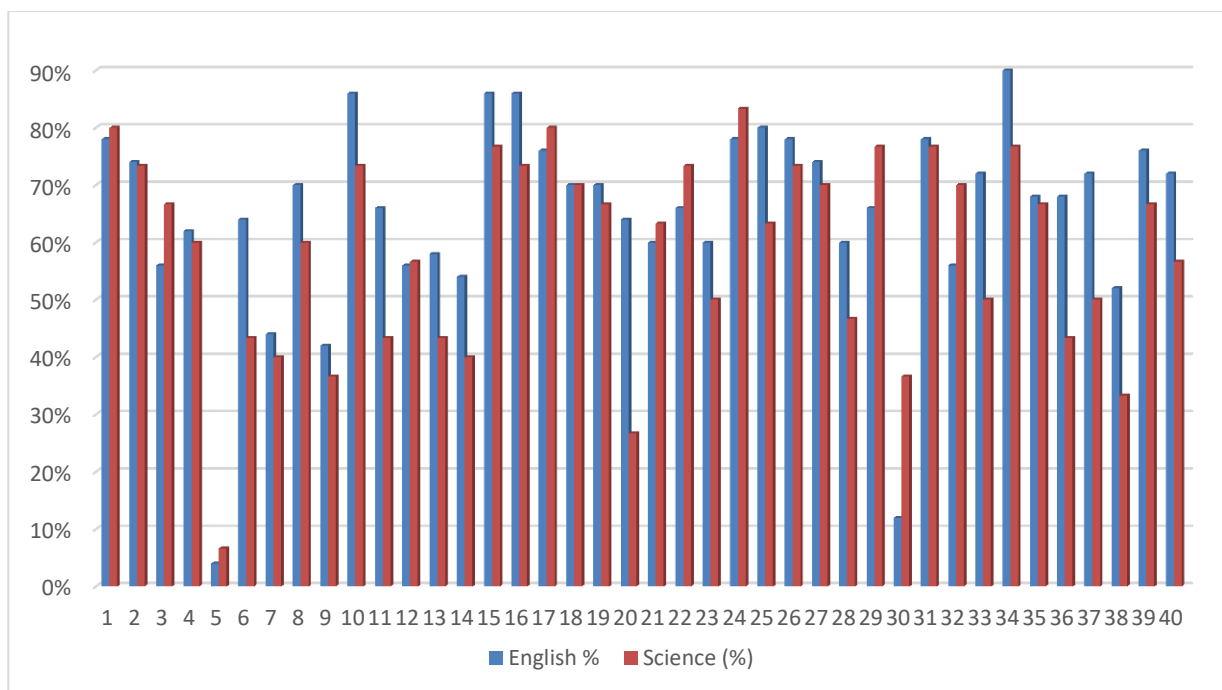
The population was all 73 Grade 7 learners of School A in Oluno Circuit. The sample comprised 40 learners from the two Grade 7 learners at School A. The learners were selected using the Simple Random Sampling procedure. Frerichs (2008) defines Simple Random Sample as a set of n objects in a population of N objects where all possible samples are equally likely to happen. This was done to ensure that all learners had a chance of being

picked from the population and therefore the results can be generalized to the population. The study used document analysis to draw data; that is, mark sheets were studied to establish the ground for both the comparison and relationship.

**Findings**

***Grade 7 learners’ performance in English and NSHE***

In an effort to answer question one (“How does the performance of Grade 7 learners in English at School A compare to that of Natural Science and Health Education?”), Figure 1 and Figure 2 were drawn. Figure 3 gives comparison of learners’ performance in English and NSHE.



**Figure 1: Comparison of learners’ scores in English and NSHE, n=40**

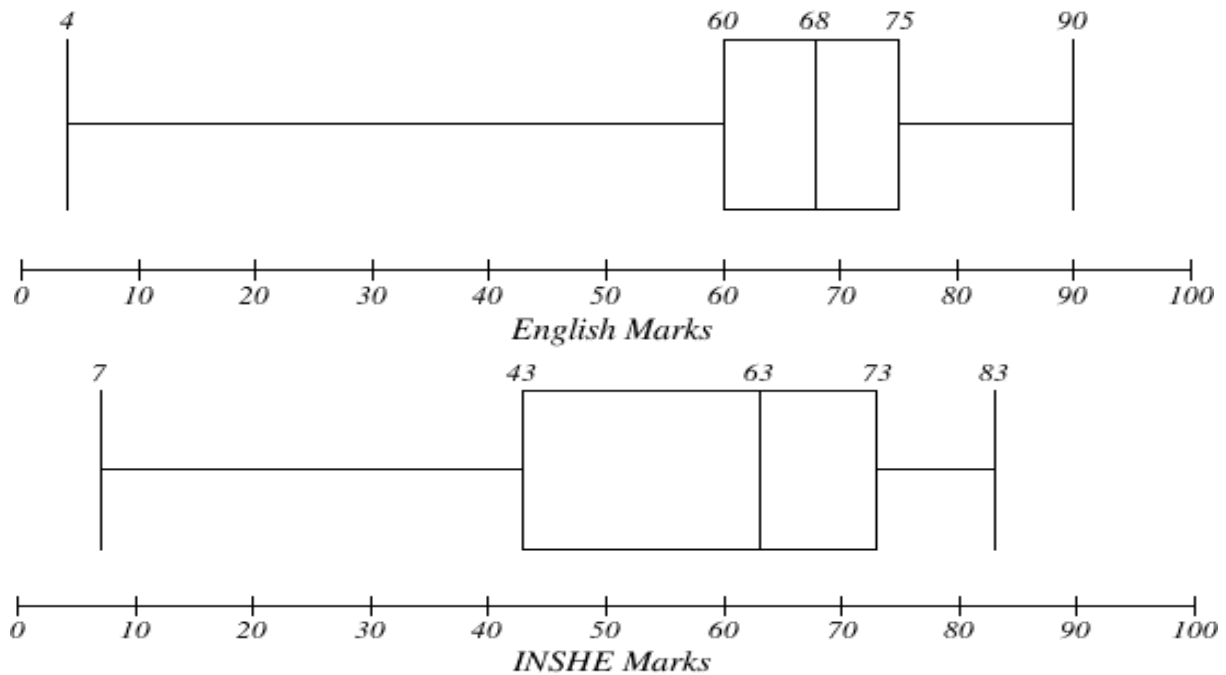
Figure 1 shows that 5% (2) of the learners did not achieve a passing mark of 40% in English; while in NSHE it was 15% (6) of the learners who did not achieve a passing mark of 40%. This indicates that more learners have failed in NSHE than in English. Considering the pass rate, about 95% (38) of the learners had passed

English; while 85% (36) of the learners had passed NSHE. This indicates that more learners passed English than NSHE. It therefore appeared that according to the pass rate that the pass rate was better in English than NSHE. Also, about 70% (28 learners) of the learners scored more marks in English than in NSHE; while only 30%



(12 learners) of the learners scored more marks in NSHE than in English. Most of the learners scored between 60% and 75% in English; whereas in NSHE most of the learners scored between 43% and 73%. Mostly, learners performed significantly

better in English compared to NSHE. In addition to the foregoing data, the five-point summary diagrams were drawn for both English and NSHE data sets. Figure 2 shows a comparison of the five-point summaries for English and NSHE.



**Figure 2: Five-point summaries of English and NSHE, n=40**

The possible scores for English and NSHE were 0-100%, where a score of 40% was considered to be a pass mark. The minimum score for English was 4% with the maximum of 90% whereas for NSHE the minimum was 7% and maximum of 83%. In terms of minimum scores, learners' performance in English appeared to be lower than in NSHE; while in terms of maximum score, learners' performance in English appeared to be higher than their performance in NSHE. The lower quartile (Q<sub>1</sub>) for English was 60% while the corresponding lower quartile (Q<sub>1</sub>) for NSHE was 43%. This indicates that 25% of the learners scored 60% or less and 43% or less in English and NSHE, respectively. The comparison of the lower quartiles appeared to draw closer to the idea that learners performed better in English than in NSHE. The inter-quartile

(Q<sub>2</sub>) for English was 68%; while the second-quartile (Q<sub>2</sub>) for NSHE was 63%. This means that half (50%) of these learners have scored 68% or less and the other half of these learners have scored 68% or more in English. In the same way, second-quartile of 63% reveals that half of these learners have scored 63% or less and the other half of these learners have scored 63% or more in NSHE. This further suggests that the performance of learners in English was better compared to their performance in NSHE.

The upper quartile (Q<sub>3</sub>) for English was 75%, which means three quarters of the learners have scored 75% or less. The NSHE, on the other hand, had an upper quartile of 73%, which means that 75% of these learners have scored 73% or less. In terms of the upper quartile, learners' performance in English seems to be higher

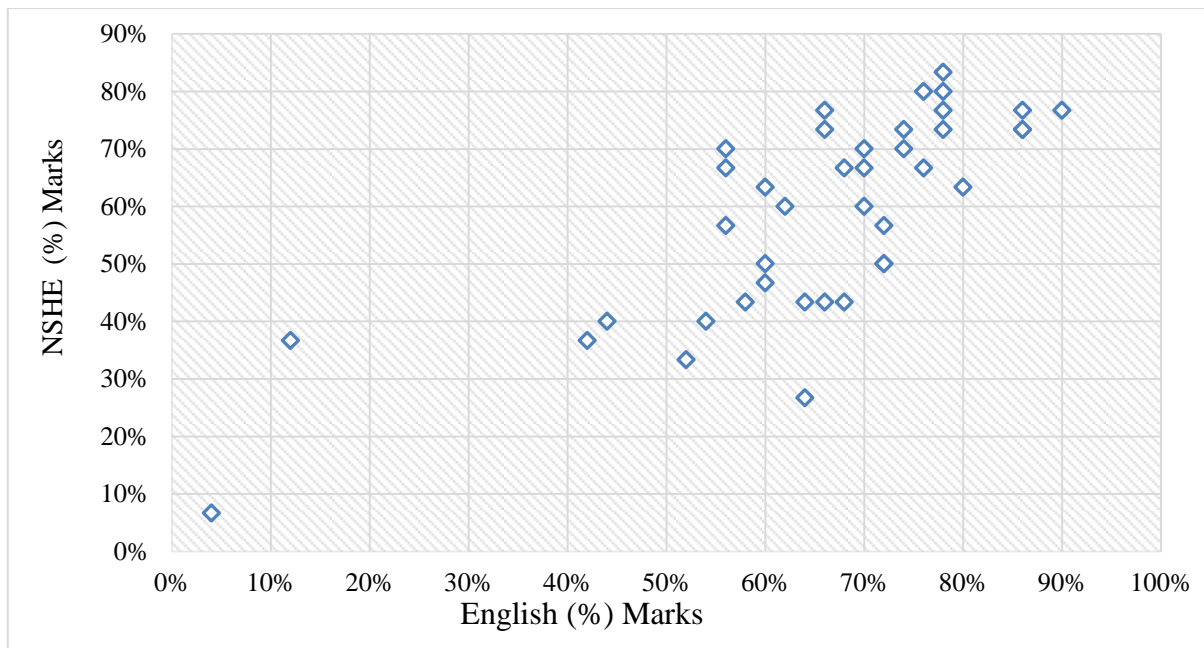
than their performance in NSHE. From Figure 2, it appears that the scores are more concentrated to the right-hand side of the five point summary, indicating that the distribution of the scores is negatively skewed. The negatively skewed distribution indicates that learners have performed well in both English and NSHE.

The overall results of the learners in the two subjects show that learners had performed better in English than in NSHE. As stated by Stephen et al. (2004), academic success is not purely the application of the intelligence of the learners but other underlying factors. Therefore, to give response to the first research question, the results revealed that

learners' performance in English was better compared to their performance in NSHE.

### ***The relationship between learners' performance in English and NSHE***

In an attempt to answer the research question two ("What is the relationship between the performance of Grade 7 learners in English and Natural Science and Health Education at School A?"), this section presents the data regarding the relationship between the performances of learners in English versus NSHE. Figure 3 was drawn in order to establish the nature of the relationship between learners' performance in English and NSHE.



**Figure 3: Relationship between learners' performance in English and NSHE**

From Figure 3, the points seem to be a positive correlation between the learners' performance in English and NSHE; this implies that from this positive correlation it can be deduced that learners with better English marks stand a better chance of passing NSHE. The foregoing findings are supported by Adika and Quartey (2016) who also noted a strong positive correlation between English proficiency levels and academic performance in

science. On the basis of the finding of this study it is plausible to argue that it is very important for learners to improve their language skills in order to perform well in NSHE. Furthermore, the correlation coefficient was calculated to measure the strength of the positive correlation established between learners' performance in English and NSHE as observed in Figure 3. As such, the Pearson's correlation coefficient was found to be

0.754661. This value of correlation coefficient suggests a strong positive correlation (relationship) between learners' performance in English and NSHE. That is, there is a greater chance for the learners whose English marks are higher also to have higher marks in NSHE.

Moreover, there is also a strong chance for the learners with poor scores in English to perform poorly in NSHE. Therefore, it appears on the basis of the data presented that learners' performance in English impacts their performance in NSHE to a great extent. If a learner has difficulty understanding the language of instruction, the potential for academic success is at best limited (Stephen et al., 2004). In addition, to measure the extent of the impact of the learners' performance in English has on their performance in NSHE, the Coefficient of Determination (CoD) was calculated. The coefficient of determination was found to be 57%. It is therefore reasonable to argue that if all other variables that have an impact on the performance of learners in NSHE are kept constant, the performance of learners in NSHE can be attributed to their performance in English up to 57%, and the other 43% is due to other variables other than English. This implies that for these learners there is a 57% percent chance for the learners to score the same good results. Additionally, for the learners performing poorly in English it is still plausible to argue that there is a 57% chance for them to also fail English. This is supported by Prinsloo et.al. (2018) who found that more than half of the overall effect on science scores was attributed to language, even beyond learners' attendance of well-resourced schools and/or being from privileged homes.

Therefore, to yield response to the research question 2, it appears that the data points towards the idea that there is a strong positive correlation between the

learners' performance in English and NSHE.

### **Conclusion**

It is concluded that these Grade 7 learners at School A performed better in English than in NSHE. A strong positive correlation was also found between learners' performance in English and NSHE. It was also found out that English influences the performance of learners in NSHE by 57% if all the parameters are kept constant.

### **Recommendations**

Based on the results obtained in this study, the following recommendations are made:

1. The school could put more emphasis on the learning of English language in order to improve learners' performance in English, NSHE and other subjects that are taught in English.
2. All English teachers should include science skills when teaching content subjects (cross-curricular teaching).
3. All teachers could engage in professional development which addresses second language pedagogy across the curriculum.
4. Curriculum developers could develop curriculum that allows for cross-curricular teaching and collaboration.
5. English and NSHE teachers could share ideas on how to integrate language skills in their lessons in order to improve learners' performance and promote cross curricular teaching.

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