

TRANSLANGUAGING PRACTICE IN SCIENCE EDUCATION

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The aim

The aim of the present study is to investigate whether – and, if so, in what ways – a translanguaging practice, in which multilingual students are allowed to use diverse culturally and linguistically experiences and skills, is a resource for science learning, and how this opportunity can be a resource to empowering their science learning. In other words, the study explores in what ways, the multilingual students use diverse linguistic resources in authentic communicative situations in science instructions context.

Method

The study is ethnographic, and has followed a multilingual science classroom at primary school one week per month for three years. The observing lessons have been documented by four video cameras and four audio recorders. The study describes, from a sociocultural perspective, how the students use *translanguaging* (García & Wei, 2014), that is, different linguistic resources in science learning. The *translanguaging practice* (García & Wei, 2014) allows the multilingual student to use both their first and second language in their negotiations of subject-specific words and concepts as they encounter in the science instruction context, and enables the multilingual students to contextualize and relate the science content to their linguistically and culturally background, and their life outside of school.

Analysis framework

The analytical work is based on a sociocultural theoretical framework. In this method, the perceived language development and learning are intimately interwoven and the development largely takes place through interaction in social contexts. Individuals and groups gradually acquire the knowledge and the language that constitutes the discourses, which can then be used for communicative purposes (Engeström & Middleton, 1998; Jakobsson, 2012; Säljö, 2010; Wells, 1999). The translanguaging epistemological conceives language relationships in creativity and dynamic terms (García & Wei, 2014).

Linguistic loops

The multilingual students often use both their first and second language in their movement between different discourses in science learning (Karlsson, Nygård Larsson, & Jakobsson, 2016). In everyday discourse, the multilingual students often use their first language, while, they more often use their second language to express subject specific words and concepts in school science instructions contexts. This is, the multilingual students move in linguistic loops (Karlsson et al., 2016) in a continuum between diverse discourses by using both their first and second language, and different modes of expressions. The multilingual students' use of both their first and second language in science instructions context increase their discursive mobility (Nygård Larsson, 2011), i.e. the students' ability to move linguistically between and within different discourses increase, meaning, the students linguistic space is extended. In this way, the students' communicative spectrum increase when they are allowed to use diverse linguistic resources.



Result – so far

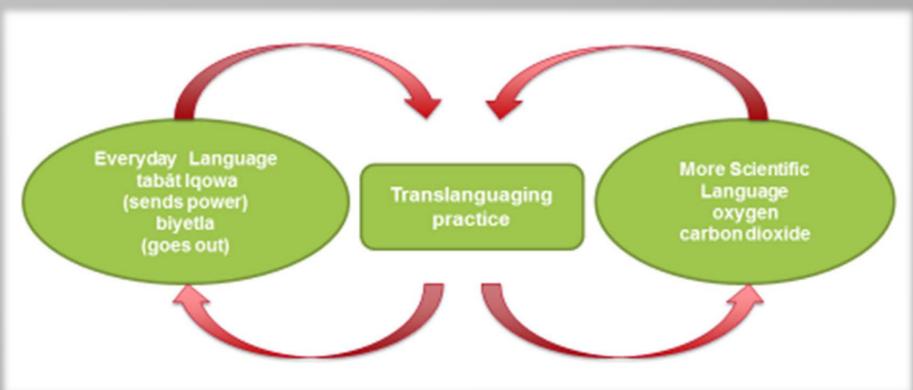
In this multilingual science classroom, teachers and students use all their available linguistic resources to create understanding for the subject matter, such as, first and second language, gestures and illustrations. This turns, when the students make use of both their first and second language in joint negotiations of words and concepts, which they encounter in the science instruction context. The translanguaging practice also allows students to contextualize the abstract subject matter to their own every day experiences, and relate the science content to their cultural and linguistically background. The ability to use all available linguistic resources allowed an increased participation in the science instruction situations for these multilingual students, and their experiences and cultural background became a part of the science instruction context, and, in this way, the students were more positioned as co-constructors of their own learning.

Implications

The results of the study underscore the importance of providing multilingual students science instruction in translanguaging practices, and shows the fact that newly arrived students, who had started their schooling and developed a basic knowledge of science in their home country, need to have the opportunity to continue their knowledge development in a language that makes this possible. The multilingual students need to have interactive spaces in which they are allowed to use all linguistic resources. The multilingual students' use of all available linguistics resources in a translanguaging practice is a prerequisite to fully participate in exploratory conversations and dialogical negotiations about the subject content. García and Wei (2014) also means that the translanguaging practice contributes to the development of critical thinking skills and deep comprehension.

Publications

- Karlsson, A. (2016). Code-switching as a linguistic resource in the multilingual science classroom. Part 12 Strand 12 Cultural, social and gender issues in science and technology education, Science Education Research: Engaging Learners for a Sustainable Future (Proceedings of ESERA 2015).
- Karlsson, A., Nygård Larsson, P., & Jakobsson, A. (2016). Flerspråkighet som en resurs i NO-klassrummet. *Pedagogisk Forskning i Sverige*, 21(1-2), 30-55.



Negotiation of words and concepts

The students make use of both their first and second language in joint negotiation of words and concepts, which they encounter in the science instruction context. In the negotiation of the word tree trunk, Naserin and Nora are using both their first and second language. The more subject-specific word tree trunk is expressed in the second language, while they are using their first language to explain the semantic relations between the tree trunk and the tree. They negotiate the unknown word tree trunk in Arabic, probably in the same way as they do when they encounter a new unknown word in Arabic. In this way, the multilingual students use their first language as a tool to create a deeper understanding of scientific subject-specific words and concepts.

| | | | | |
|----|---------|---|-----------------|---|
| 17 | Nora | What is tree trunk | | Wondering |
| 18 | Naserin | Tree trunk which tree trunk | | Wondering |
| 19 | Naserin | Malt eshagara (that which belong to the tree) | مالت الشجرة | |
| 20 | Nora | What is tree trunk Alqism (what is tree trunk a part) | القسم | Wondering |
| 21 | Naserin | Tree trunk Hay mata' eshagara (tree trunk it is that which belongs to the tree) | هاي مالت الشجرة | |
| 22 | Nora | alqism (a part) | القسم | |
| 23 | Naserin | Yes... Aakherer she minne (Yes the last part) | أخر شيء | She shows the thickness of a tree trunk with her hand |
| 24 | Nora | Aakher she (aha last part) | أخر شيء... | She shows with her fingers |
| 25 | Naserin | Yes Aakher she (yes the part the last) | أخر شيء... | |

References

- Engeström, Y., & Middleton, D. (1998). *Cognition and communication at work*. Cambridge: Cambridge University Press.
- García, O., & Wei, L. (2014). *Translanguaging: Language, bilingualism and education*. Basingstoke: Palgrave Macmillan.
- Jakobsson, A. (2012). Sociokulturella perspektiv på lärande och utveckling: Lärande som begreppsmässig precisering och koordinering. *Pedagogisk Forskning i Sverige*, 17(3-4), 152-170.
- Nygård Larsson, P. (2011). *Biologiämnets texter: Text, språk och lärande i en språkligt heterogen gymnasieklass*. (Doktorsavhandling).
- Säljö, R. (2010). *Lärande och kulturella redskap: Om läroprocesser och det kollektiva minnet* (2. uppl. ed.). Stockholm: Norstedt.
- Wells, G. (1999). Language and education: Reconceptualizing education as dialogue. *Annual Review of Applied Linguistics*, 19(1), 135-155.

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