

# Nature-based early childhood education, a fertile ground for Instructional Support in Quebec early childhood centers? Yes, but...



Bouchard, C. <sup>1</sup>, Parent, A.-S. <sup>1</sup>, Leboeuf, M. <sup>1</sup>, Lemay, L. <sup>2</sup>, Bigras, N. <sup>2</sup> et Asselin, M. <sup>1</sup>

<sup>1</sup>Université Laval and <sup>2</sup>Université du Québec à Montréal, Québec (Canada)

For more information: [caroline.bouchard@fse.ulaval.ca](mailto:caroline.bouchard@fse.ulaval.ca)



## 1. Introduction

- As part of the quality of interactions (see Figure 1), **Instructional Support (IS)** refers to the adult's ability to build on the child's knowledge to support his or her learning (Perlman et al., 2016; Pianta et al., 2008).
- In early childhood education, the **quality level of IS tends to be low** (e.g. Bouchard et al., 2017, 2021; Cadima et al., 2010; Sabol et al., 2018; Houben et al., 2023), so much so that it **doesn't provide a significant influence** on young children's learning (e.g. Burchinal et al., 2010, 2016; Perlman et al., 2016). As for example, based on the Classroom Assessment Scoring System (CLASS) tool (see Figure 1), the level identified in **Quebec (Canada) is 2.49** out of 7 (ministère de la Famille, 2020).
- The **quality threshold** required for IS would be **3 or 3.25** out of 7 (Burchinal et al., 2010, 2016; Teachstone, 2023).
- However, based on previous work (e.g. Norling et al., 2015; Castro et al., 2017), notably the one of Tonge et al. (2019) in outdoor environments, **nature-based education (NBE) could provide a fertile ground** for the quality of IS in young children, **because of the pedagogical principles that frame it** (e.g. loose parts, child-centered approach, different view of time; see Figure 2).

## 2. Theoretical framework

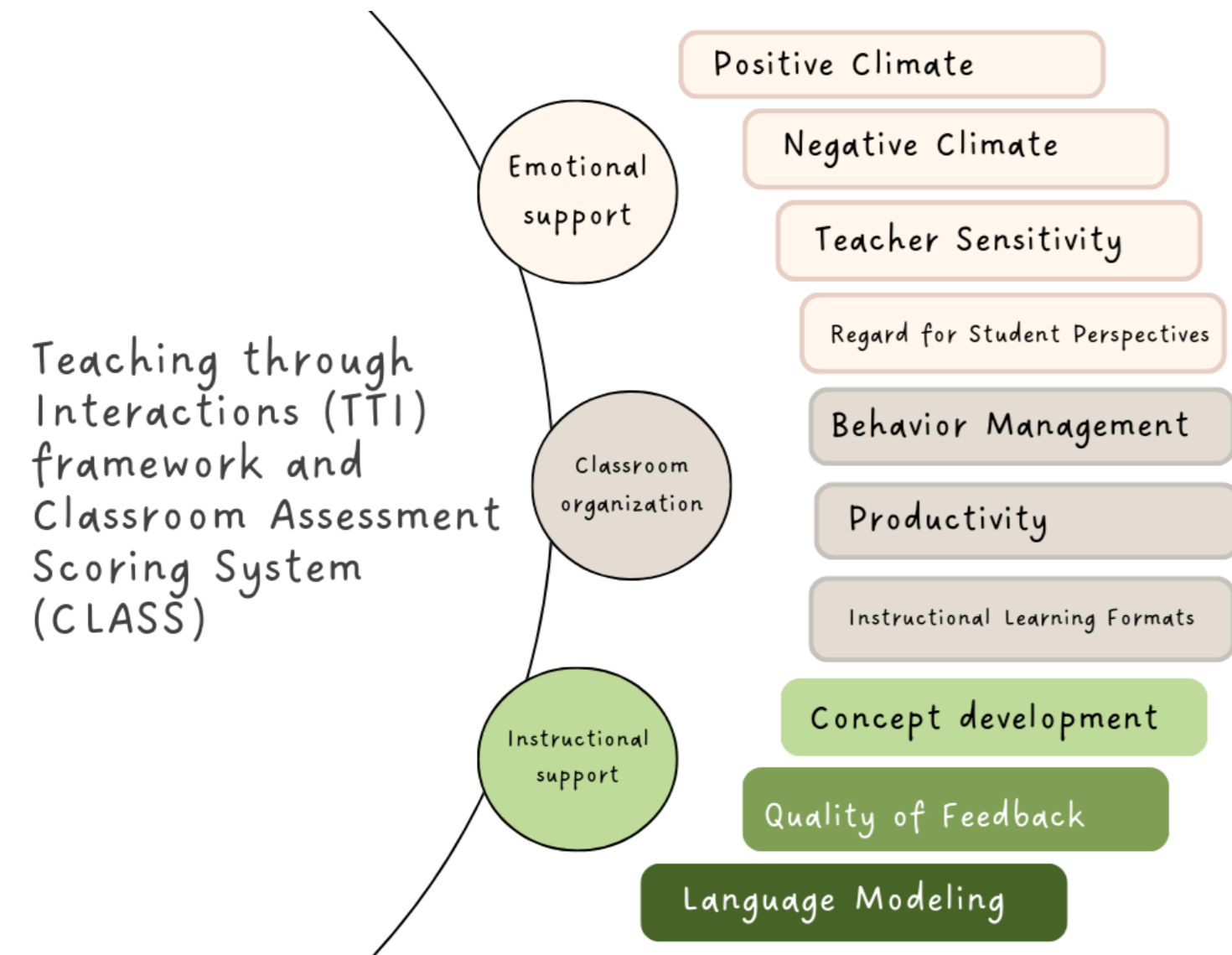


Figure 1. The Teaching through Interactions framework and the Classroom Assessment Scoring System (CLASS for Pre-K; Pianta et al., 2008)



Photo: Marie-Pierre Lajoie

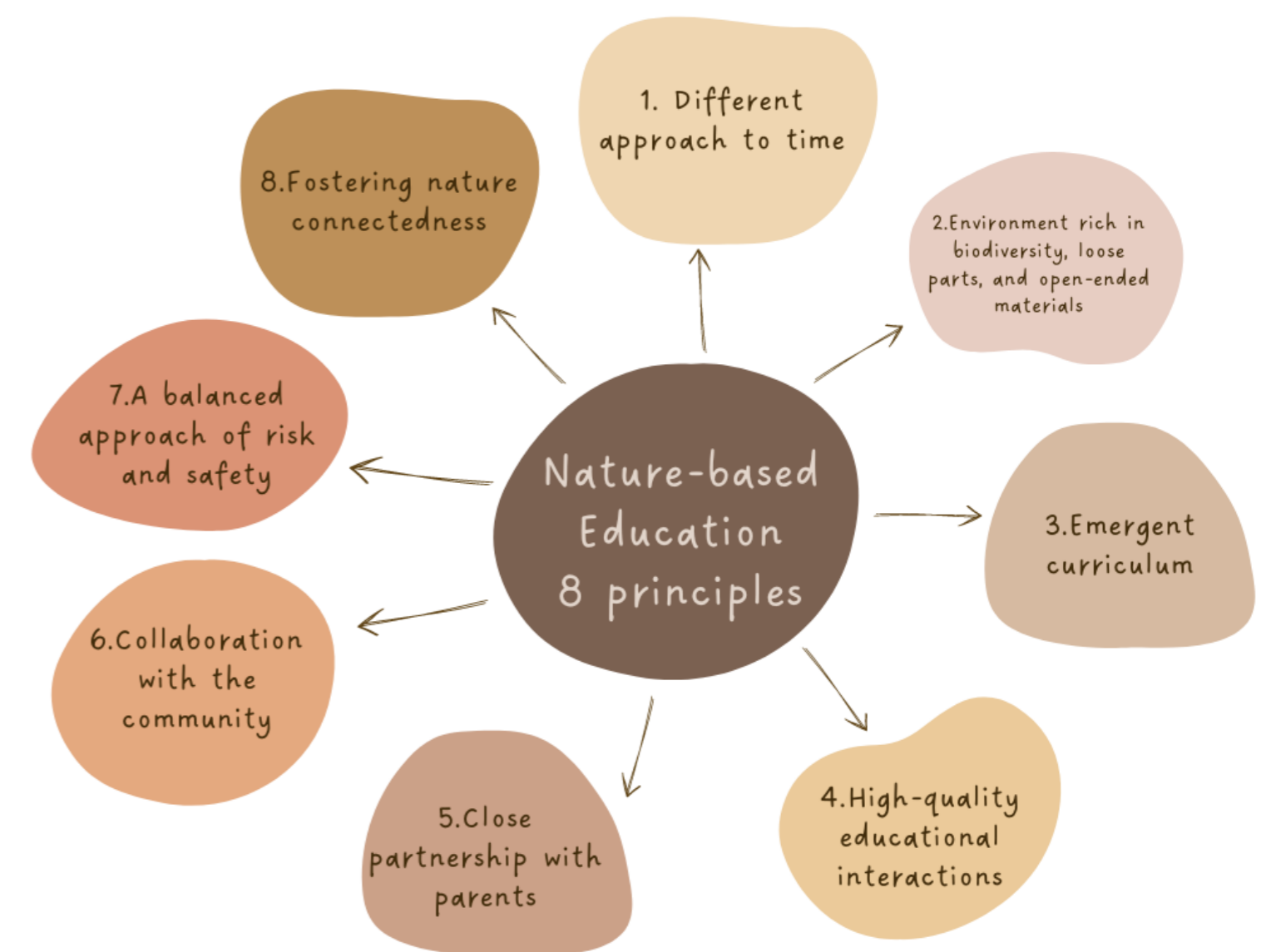


Figure 2. The 8 principles (P) of NBE in early childhood: interrelated and interdependent (Leboeuf & Pronovost, 2020)

## 3. Objectives

- Investigate** the IS offered by early childhood educators who work in NBE by **identifying profiles**;
- Explore** the contribution of each **NBE principles to IS**, according to the **highest-scoring** educators.

## 4. Method

### Sample

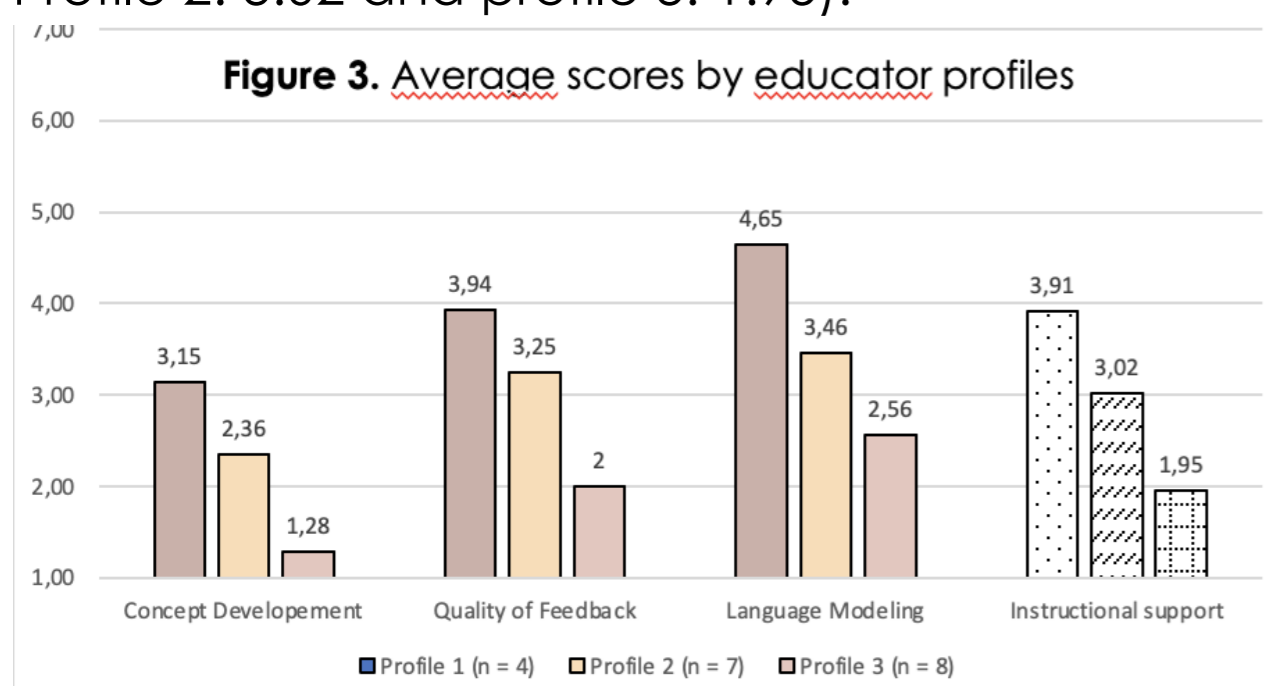
- 20 groups, 3-5 yrs** children and their educators (n=1 male) from 8 early childhood centers in Quebec, Canada; 8.88 children (SD = 2.63) and 2 adults per group.

### Measures

- Observations** (2 hours in natural settings) of the **IS** with the CLASS (Pianta et al., 2008); scores from 1 (low) to 7 (high) and **semi-structured interviews** with educators.

## 5. Results

- Descriptive analyses**, for the whole sample:
  - 2.25 (SD = 1,18) for Concept development (CD);
  - 2.99 (SD = 1,03) for Quality of feedback (QF);
  - 3.43 (SD = 0,99) for Language modeling (LM);
  - 2.89 (SD = 1.00) for IS.**
- A **cluster analysis** on the IS dimensions reveals **3 different educator profiles: high, medium and low** (see Figure 3 above).
- One educator is not included** in these profiles, due to her high scores : 5.75 (CD), 5.25 (QF and LM) and **5.42 (IS)**.
- ANOVAS and posthoc tests show that **all profiles are differentiated**, with the exception of profiles 1 and 2 for QF;
- For IS, **profiles 1 and 2** are above the **quality threshold** (respectively 3.25 and 3): Profile 1: 3.91; Profile 2: 3.02 and profile 3: 1.95).



According to the quality threshold, NBE can provide a context conducive to IS, but for some educators only : profiles 1 and 2 (n = 11/20 educators).

Nevertheless, their scores of 3.91 and 3.02 barely reach the average level (score of 4) on the CLASS scale. Then, **what would characterize a higher level of IS ?**

To answer this question, the comments of the educator with the highest IS scores, with such a discrepancy that she was excluded from the profiles, were examined.

- An in-depth **qualitative analysis** (with Max QDA) of this educator's comments reveals that her reflections are mostly centered around **NBE principles 1 to 4, and 8** (See Figure 1), i.e. those related to time, place, pedagogy, interactions and nature-connectedness. Here are examples of her thoughts :

- P1** "You can see how nature changes with the seasons and how you can take advantage of the area completely differently. Like in fall, there were lots of mud holes... (...) we went for a walk in the mud, and we experimented with the suction... There was a lot of different observations and sensations... And the next day, the snow appeared! All was bright! There were no more mud holes (...) Winter is here... Then [we reflect] to understand all this... The notion of seasons, how nature changes ..."
- P2** "In the woods, they came to get wooden poles to [build a stretcher], but they realized that there was a long pole, and another that was not long enough. So we made a bit of mathematics to compare poles... So when we talk about emergent curriculum, it's a bit like that, to integrate notions, knowledge, but all in (...) Just by questioning, why and how, and so we measured our two poles (...). So we learned on the spot all the notions of size and measurement, with nothing more than branches."

● Instructional Support

## 6. Discussion

- This exploratory study reveals that **NBE may be favorable to enhance IS** in early childhood education. Certain NBE principles seem to be at play in higher level of IS :
  - NBE Principles 1 to 4**, i.e. those related to time, place, pedagogy and interactions, could be decisive to particularly promote **Concept Development** and **Language Modeling**.
  - Principle 8**, Fostering nature-connectedness, could be, too. For instance, the educator reports the richness of situations where children's wonder and curiosity about the natural environment become opportunities for sustained shared thinking.
- These elements could be **targeted in NBE and IS professional development and coaching activities**, with the aim of improving IS. Ultimately, this is likely to have an impact on young children's learning and development.
- In order to better study the contribution of NBE, further studies should be carried out with a **control group**.

## 7. Acknowledgements

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## 8. References and poster

