

Introduction/Literature Review

Children's writing
A holistic view of the young learner has been increasingly emphasized by educational psychologists (Bobbitt Nolen, 2020). However, the writing research has focused mostly on cognitive variables such writing knowledge. Montessori learning environments afford unique conditions for approaching the whole child. In this study, I conceptualized children's writing experiences as a complex dynamic system (CDS) consisting of a wide range of interacting components. Using CDS theory tools (Hiver & Al-Hoorie, 2016), we investigated how writing-related values, beliefs, and knowledge interacted and shaped the experiences of writing of a child writer. Equipped with multiple positionalities (Montessori educator, parent, and researcher), we followed a 9-year-old in his writing journey in his heritage language (HL; French) over a span of 6 months and 36 writing sessions in a Montessori home schooling environment. Figure 1 illustrates the wide range of variables we captured and the multiple theoretical frameworks we used to define each of them.

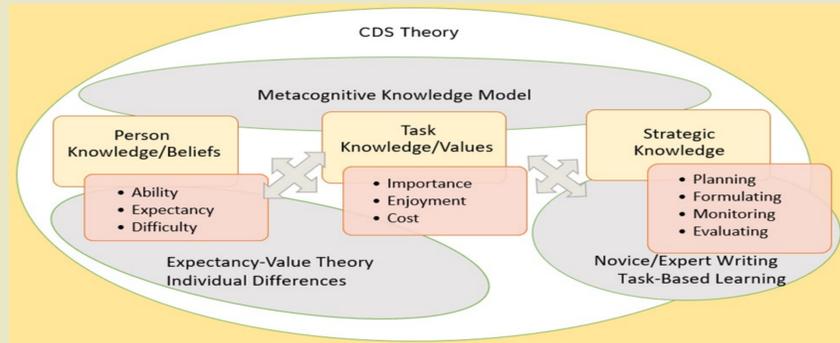


Figure 1: The theoretical frameworks used to articulate the writing components and subcomponents.

Research Questions

1. What are a heritage language learner's experiences in a set of writing sessions?
2. How do the writing experiences of the participant change over time?

Methods

This longitudinal single case study design used a mixed method with multiple quantitative and qualitative data sources: writing samples, learner surveys, interviews, instructor observations and researcher memos. Participant-reported ratings of writing-related values, beliefs, knowledge and subcomponents were plotted across the 36 data points. Time plots of accuracy (error-free verb forms) and fluency (average sentence length (Wolfe-Quintero et al., 1998) illustrated trajectories of change. I analyzed the participant's semi-structured interviews using a grounded theory approach consisting of multiple systematic and comparative rounds of coding, memoing and thematic analysis. The CDS conceptual and analytical tools such as interconnectedness, non-linearity, adaptive and self-organizing processes were the appropriate to capture writing experiences over time.

Results

The participant moved fluidly between two levels of experience: (1) the macrolevel of writing as a stable, positive higher-level ("It is important." and "I can do it.") and (2) the microlevel of writing each task characterized by situated lower-level fluctuations ("I wasn't really excited."; "It was hard."; "I liked it"; "It was easy").

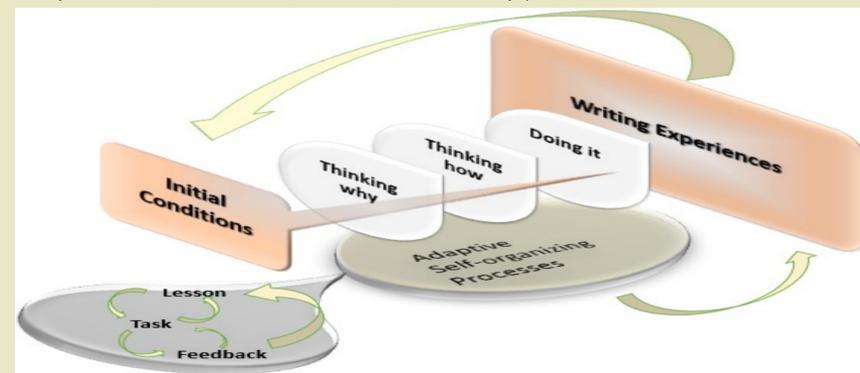
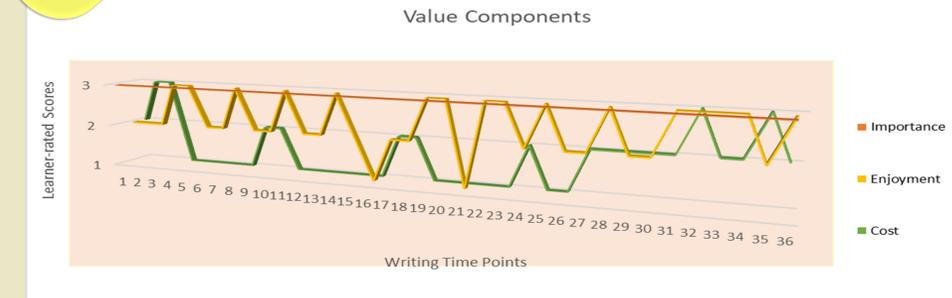


Figure 2: A Complex and Dynamic Model for the Writing Experiences of One Learner.

The numeric data represented by time plots show how the subcomponents of value, beliefs and knowledge behaved across the 36 writing tasks.

Thinking Why

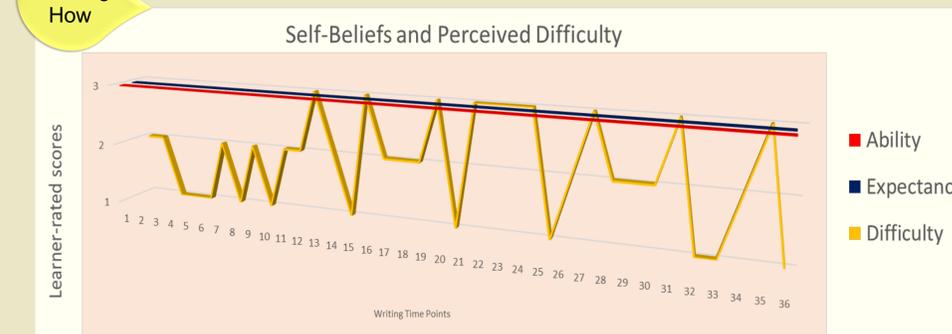
"It's for my grandma so she can see what I am doing in life."
"I like it when it is challenging"; "I don't like it when I make an effort'.



The importance value for writing exerted an overriding effect on the writing enjoyment and cost. The participant consistently acknowledged that writing was important for both intrinsic and extrinsic end goals and rewards while experiencing the specific tasks as carrying variable effort and opportunity, and variable enjoyment.

Thinking How

"If I continue, I will totally be better. "; I am really good at it [writing].



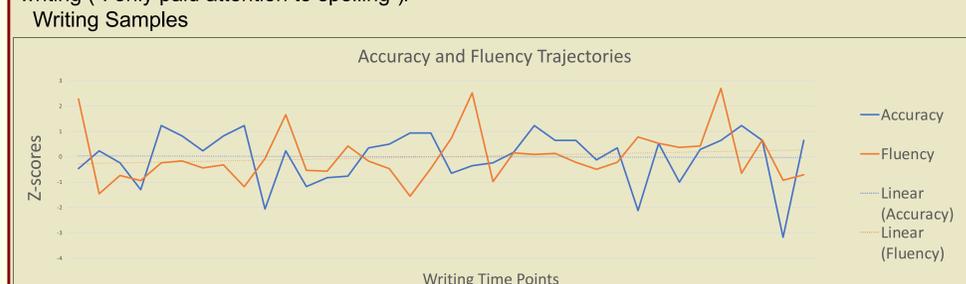
Adaptive processes such as regulating effort, and attention were frequently reported as strategies for managing task difficulties. The participant's initial conditions (bilingual identity, language proficiencies) was one mechanism that sustained his consistent beliefs of ability and control over writing goals such as writing accurately and elaborating his ideas ("Oh, yeah, I can do this").

Doing It

"Writing a lot makes it more interesting"; I put an effort into verbs, not so much into other words."



The most visible progression over time was in the participant's strategic knowledge, and more specifically in his reports of planning, monitoring, and evaluating his writings. The dramatic variability observed in the beginning sessions stabilized at the highest level and remained so until the end of the study frame. This stabilization may be the result of a direct explicit instruction of strategies for improvement in spelling and elaboration. Metacognitive and metalinguistic knowledge (awareness of form/meaning) were cognitive mechanisms that allowed the writer to adopt tradeoff strategies in writing ("I only paid attention to spelling").



The accuracy and fluency scores of the writing samples mattered in the learner's reports, therefore, in his writing experiences. As a general perception, the learner thought that his accuracy and fluency scores were always great because he believed that the writing tasks were for practice and errors were necessary to learn more through corrective feedback.

Discussion

While traditional group-based research generalized results on children's writing based on averaging their experiences, behaviors and outcomes, this study took an in-depth look at a wide range of variables. Using a CDS lens, I discuss the fluctuation in values, beliefs and knowledge and their subcomponents as evidence of developmental insights into the child's complex repertoire of feelings and behaviors. The main finding was the child's awareness of the two levels of experience: the local tasks and the global perception of writing as an important experience with attainable outcomes. The importance and perceived ability and control of writing fueled by the child's initial conditions (identity, language proficiencies, epistemological beliefs) functioned as a self-organizing mechanism that maintained engagement despite occasional task challenges and lack of enjoyment.

At task level, fluctuations in writing values, beliefs and knowledge subcomponents are evidence of adaptive processes the participant engaged with. For example, while he often talked about using drafting and editing strategies in English at school, the French writing samples and the interview data showed that the participant did not automatically tap into that strategic knowledge. He reported deliberately skipping monitoring or re-reading his written products in French because he viewed them as trial-and-error practice rather than assignments. In addition to evident metacognitive and metalinguistic knowledge, this is an example of dynamic interplay between the participant's initial understanding of the local level of the writing task goals (practice) and the global dimensions of the context (i.e., home setting vs. school; HL vs. school language). Thus, the participant perceived the local and global levels as interconnected and, reported acting on that understanding. Interconnectedness refers here to how the learner's initial conditions were context with explanatory power for his writing-related values, beliefs, and knowledge.

Inspired by developmental psychology, a CDS lens contributes a whole new insight into writing: it develops in a non-linear, highly variable, and unpredictable way that does lead to growth (Larsen-Freeman, 2017). Here non-linearity can be seen in the fact that the learner's writing was not proportional to changes in the instruction. The teacher's adaptive instruction, task features and feedback aiming to align the learner's skills and task difficulty did not always resolve the mismatch between the task cost and enjoyment. For example, the provision of topic choice and content scaffolding via specific prompts did not systematically translate into any subsequent reports of enjoyment or ease to write despite their intended function of boosting motivation via autonomy, relatedness and competence.

Implications for Montessori Practice

The grounded theory model of a child's writing viewed as a complex and dynamic system provided insights into points of leverage for Montessori practitioners who design writing instructions and activities. In doing so, understanding and working with children's initial conditions, cognitive, socio-affective individual differences is key. Small changes in the local components and subcomponents of writing activities may translate into positive global changes in experiences, and hopefully outcomes, over time. Practitioners should gain insight into how their students experience their writing instruction (including practice and feedback) both within tasks and across tasks, in general. This study showed how writing-related components unfold erratically during writing tasks. Therefore, by assuming the complexity of learning processes and expecting variability in outcomes, educators may also operate from a more empathetic place when working with language learners. From such a place, practitioners might find multiple and better ways to both support and channel variation and fluctuation in children's experiences within tasks so that global engagement sustains over time.

Limitations and Future Research

This study is about one's child's reports of writing experiences. Therefore, this study was as much about the learner's beliefs and perceptions about these experiences as it was about our ability to interpret them as outcomes of writing as a complex dynamic system. First, the learner's verbalized thoughts may not account for his most salient experiences because he may not be able to recognize or to express them due to their partly subconscious nature, which is a common limitation in research based on learners' reports. Second, the probing questions may have not elicited his core experiences or a wide enough spectrum of his experiences (Kagan, 1990). Last, case studies as a study design are criticized for their lack of generalizability. In fact, a conventional understanding of generalizability does not hold in studies conducted within a CDS paradigm since they are primarily concerned with investigating variability and change in social phenomena at the intraindividual level. Therefore, there are no claims of generalization of these findings. However, exploratory and analytic inductions arising from more and more case studies could inform on how phenomena with similar types of interactions might work elsewhere (Hiver & Al-Hoorie, 2019). Future research should adopt case studies with a variety of participants and settings as well as other situated variables related to instruction and feedback.

Key References

Hiver, P., & Al-Hoorie, A. H. (2016). A dynamic ensemble for second language research: Putting complexity theory into practice. *The Modern Language Journal*, 100(4), 741-756.