A dynamic systems approach to wait time in the second language classroom

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A B S T R A C T

This study discusses how wait time—the silent pause after a teacher elicits a student response—alters classroom discourse. Previous wait time research suggests overall positive changes in both teacher and student discourse where wait time is over 1 s. However, such studies are primarily structuralist in nature and tend to reduce the intricacy of classroom behavior to distinct variables, which can be easily altered to achieve a desired result. The data presented here comes from a series of structured observations of a UK university postgraduate L2 classroom. The findings were as follows: 1) Wait time played an intricate role in determining classroom discourse patterns and heavily favored an IRF turn-taking sequence; 2) student-initiated discourse was low in all observations and favored higher proficiency students; 3) the length of individual student-initiated turns appears to have been more important than the overall number of student-initiated turns in determining the quality of classroom discourse and was not directly related to changes in wait time length; 4) extended wait time (over 2 s in length) temporarily shifted discourse out of an IRF pattern and into a new, more student-driven phase. While previously thought of as only a pedagogical tool to increase student speech, wait time is shown to be a phenomenon which develops and changes with the composite forces that affect other aspects of classroom discourse.

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1. Introduction

1.1. Introducing wait time

Recently, educational researchers have begun to extensively study silences and pauses in the language classroom to determine their significance within classroom discourse and to improve teacher/student perceptions of these gaps in spoken discourse (Harumi, 2011; King, 2013; Nakane, 2007; Yashima, Ikeda, & Nakahira, 2015). An intimately related, yet under-studied, area in contemporary discourse analysis is wait time. This study defines wait time as the duration between a teacher elicitation and student response or second teacher utterance. Interest in wait time increased after seminal publications by the science classroom researcher Mary Budd Rowe in 1969 and 1974, and her investigations prompted a number of subsequent studies exploring wait time's potential uses in the classroom in the 1970s and 1980s. Almost all such research argues "the

quality of discourse can be markedly improved" by manipulating these particular pauses (Rowe, 1986, p. 48). Notably, researchers across disciplines found an average wait time of one second in L1 classrooms and just over two seconds in language classrooms (Rowe, 1974a,b; Shrum, 1984, 1985). Some researchers have found wait time to be a conscious product of discomfort with classroom silence, yet for others it is simply an unconscious and unnoticed pausing behavior after eliciting a response (Honea, 1982; Swift & Gooding, 1983). Despite extensive research on the subject and its seemingly positive effects on classroom discourse, wait time research fell out of favor in the late 1980s, and there has been a notable absence of research since. Educational research has since preferred the investigation of classroom processes and interactions, rather than the product-oriented approaches so heavily favored in the 1970s and 1980s (de Bot, Lowie, & Verspoor, 2007). Currently, few studies exist concerning wait time in language classrooms, and there are no recent studies on the effects of wait time in L2 university classrooms. Most contemporary research referentially mentions wait time within larger classroom discourse processes, noting that its manipulation is an important pedagogical technique, but at times overlooking contextual differences that may influence the various effects (both positive and negative) of lengthened teacher pauses (Ingram & Elliott, 2014; Kirton, Hallam, Peffers, Robertson, & Gordon, 2007). This study examines how wait time functions within the complex dynamic system of classroom discourse and how its variation is related to various occurrences of speech found therein. If wait time is related to improved classroom discourse, it seems that teachers would benefit students by making a conscious effort to lengthen these pauses.

1.2. An overview of previous wait time research

Despite varying definitions of quality classroom discourse, most scholars promote extended wait time as crucial in increasing student-guided discourse, arguing that extension allows more time for cognitive processing and thereby more complex speech (Honea, 1982; Rowe, 1974b; Swift & Gooding, 1983; Tobin, 1986). Characteristics of such discourse include high student-to-student interaction, student questions, and a more relaxed and congenial atmosphere (Honea, 1982; Stahl, 1994). Many researchers note wait time's relationship to elicitations, linking high cognitive level questions to extended wait time (Boeck & Hillenmeyer, 1973; Tobin, 1986; White & Lightbown, 1984). They argue that this transformed classroom environment not only improves student speech, but also fosters student confidence and achievement, which have a cyclical effect on discourse (Riley, 1986; Tobin, 1986). The only exception is Gambrell (1983), finding shorter wait time after higher cognitive level questions in L1 third grade (ages 7−8) classrooms in the U.S. She proposes that shorter wait times after these questions indicate the teacher's assumption that students will be unable to respond. Wait time research in a second language context is limited to Shrum's work, notably the only conclusive set of wait time studies in second language classrooms (1984, 1985). She finds that wait times in French and Spanish L2 classrooms are longer than the one second average found in L1 classrooms, with teacher wait time averaging 1.9 s (1985). With student level as an independent variable, Shrum (1984) finds longer wait time after questions to high- and low-level students, positing that longer wait time indicates language teachers' awareness of their students' processing needs. However, many of these studies reduce classroom behavior, especially wait time, to a distinct variable which can be easily manipulated to achieve a desired result. In this way, wait time research can be limiting due to its inapplicability across classroom contexts. In fact, many researchers have disputed the efficacy of extended wait time in all classrooms, as holistic student achievement is not easily quantifiable. Some scholars have found feelings of frustration and confusion among students during longer periods of silence (Duell, 1994; Duell, Lynch, Ellsworth, & Moore, 1992; King, 2013; Kirton et al., 2007; Tincani & Crozier, 2008). Contemporary researchers (e.g., Ingram & Elliott, 2014; Kirton et al., 2007; Sun, 2012; Tincani & Crozier, 2008) have taken a more process-oriented approach to wait time, with mixed results. Ingram and Elliott (2014) observed how wait time can affect classroom turn-taking behavior, finding that wait time is built into and enables classroom talk with a heavy reliance on IRF (Initiation, Response, Feedback) discourse (Sinclair & Coulthard, 1975). They also found that extended wait time often precluded student self-selection because it entails teacher control over pauses and student selection, which can hinder naturally flowing conversation. Clearly, then, wait time and classroom discourse have a complex relationship which requires an appropriate conceptual framework through which we can view this phenomenon.

1.3. Dynamic Systems Theory (DST) and attractor states in classroom discourse

Recently, an increasing number of applied linguistics researchers (e.g., Ellis & Larsen-Freeman, 2009; Verspoor, Lowie, & van Dijk, 2008; Waninge, Dörnyei, & de Bot, 2014) have recognized DST as a theoretical framework for educational research. DST-informed approaches maintain that the behavior of organic systems is not a result of causal relationships between static components, but rather of dynamic interaction between system agents (Larsen-Freeman, 1997). Consequently, the system's behavior cannot be easily predicted, as altering one component may result in large, small, or no changes in the system. A DST framework accounts for the constant flux and evolution inherent in real classroom environments and for the complexity in human interaction and behavior. The approach has recently provided a useful lens through which researchers can view the silences of language learners and better understand the self as a temporal system of relational networks (see King, 2013; Mercer, 2014, 2015). Current DST-informed research also shows in what ways classroom phenomena can be both cognitively and socially affective. For example, fossilization in language acquisition can act as an attractor state, maintained by particular aspects of the classroom and a student's sociolinguistic behavior (Ellis & Larsen-Freeman, 2006; de Bot et al., 2007).