

*A Presentation  
of  
Ortega & Iberri-Shea's (2005)  
Review Article:*

LONGITUDINAL RESEARCH  
IN SECOND LANGUAGE  
ACQUISITION:  
RECENT TRENDS AND FUTURE  
DIRECTIONS

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'He that will not apply new  
remedies  
must expect new evils;  
for time is the greatest  
innovator.'

*Francis Bacon*  
(1561–1626)

## *It's All a Matter of "Time"*



Research findings have always shown that learning a foreign language is a difficult process which takes not only effort but also time, and a lot of it. Indeed, one can argue that many problems about L2 learning are, in part, problems about “time”. As such, any claims about improvement in learning a new language are best interpreted within a full longitudinal perspective. It is unfortunate, however, that most disciplinary discussions within the field of second language acquisition, or SLA, favor a cross-sectional view of language learning and, as a consequence, discussions about longitudinal research are rare and far apart.

An example is Hatch and Lazaraton's 1991 book on applied linguistics research methods. In this work of more than 600 pages, only four pages are devoted to time-series research. Inspection of more recent texts confirms this state of affairs. In brief, SLA researchers wanting to pursue longitudinal research programs find little guidance about questions such as: What problems on the development of L2 competencies have SLA researchers investigated longitudinally? And what unique challenges does the longitudinal study of L2 learning entail?

This study by Lourdes Ortega and Gina Ibarra-Shea seeks to address such questions. The authors survey longitudinal SLA research published in recent years and offer a critical reflection of best current practices and desirable directions for future longitudinal SLA research. They make it quite clear that their aim is to alert SLA researchers and graduate students to recent revolutionary longitudinal studies of L2 learning, and also to critical areas in need of attention.

The authors begin with a simple question on the centrality of time in SLA. Why is longitudinal research essential to advancement of knowledge in the field of SLA? The simple and undisputable answer is that many questions on L2 learning are fundamentally questions of time and timing. A quick look at some basic SLA research areas easily reflects this fact. For one, there is the question relating to biological time of the onset of learning, including not only “at what age” but also “for how long” L2 learning should occur if near-native success is the desired outcome. As a result, research on, for example, maturational constraints for L2 learning and the *critical period hypothesis* have been conducted.

Ortega & Ibarra-Shea also have observed that even with SLA studies that clearly support cross-sectional practices, longitudinal claims are often implicitly put forward. Exploring these issues, Ellis (2003), Robinson (2001), and Skehan (2002) maintain that task-based L2 learning proposals make theoretical inferences about competence-related changes. This, however, is done through a brief inspection of a learner’s capacity for achievement in the L2 at a given point in time. If the goal is to foster advanced L2 capacities, many SLA researchers then ask: “How much instructional time is optimal in a given school curriculum, overall, and how intensively packed into the institutional schedule should it be?” (p. 27).

Byrnes (2002) believes that concerns about “time and timing” are central to the crisis of FL college education in North American universities. This is partly so because of the curricular separation of programs into lower-division language courses (where time is devoted to the basics of language learning alone), and upper-division content courses (where students experience a sudden change when instructional time is suddenly dedicated to the learning of literature and cultural studies).

To be sure, there are many SLA questions whose answers lie in longitudinal evidence:

- What do we know about the pace and pattern of development in L2 and literacy, throughout the lifetime of L2 learners?
- What critical transition points in L2 development need to be taken into account when planning and evaluating educational policy and practice for specific L2 learner populations?

In all, it is only through increasing longitudinal findings that the SLA researchers will be able to contribute a meaningful description of the gradual process of achieving second language competency across a variety of contexts.



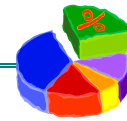
### *The Search Is On...*



Ortega & Ibarra-Shea next present their methodology, admitting that they make no claim to “exhaustion or completeness,” (p. 28) in this review. The authors report that they conducted electronic searches to find longitudinal SLA studies published during 2002 and 2003 across 20 major applied linguistics journals. This was complemented with hand searches of 2004 journal issues that were available to them. In all, the effort yielded 38 longitudinal studies focusing on L2 learning. Less than half investigated some aspect of L2 learning by young adult students enrolled in institutions of higher education, whereas about 20% examined high or middle school contexts. Few studies addressed adult learners in non-university settings or preschool/elementary children. With such findings, the authors suggest that recent longitudinal research in SLA is consistent with the emphasis on college-level populations that is typical of applied linguistics research in general.

The two researchers explain that they read all 38 studies, discussing their main features and recording the extent to which they defined and documented “change over time,” (p. 28); quantitatively, qualitatively, or both. The studies were also evaluated for their strengths and weaknesses, noting longitudinal challenges explicitly discussed in the primary reports. Ortega & Ibarra-Shea admit that this process compelled them to refine and broaden their working definition of “longitudinal” SLA research since they discovered that the study of L2 and literacy development over time was often, “undertaken from several distinct epistemological traditions, including quantitative descriptive studies of linguistic features as well as qualitative interpretive studies of socio-cognitive and sociocultural dimensions of multilingual development,” (p. 28).

The authors go on to discuss four trends in recent longitudinal SLA research:



### First Trend:

## **Descriptive-Quantitative Longitudinal Studies of L2 Development:**

According to Ortega & Ibarra-Shea, many recent longitudinal SLA studies seem to embrace a descriptive, quantitative design that:

- ⊙ focuses on quantifiable variables, but without manipulation or random sampling (or assignment) of participants to various learning conditions or contexts.
- ⊙ executes periodic data collection from the same participants over a fairly long period of time that often lasts anywhere between 4 months and 4 years.
- ⊙ prefers using descriptive statistics in the form of frequencies, percentages, or visual displays.
- ⊙ typically involve multiple participants in small groups (e.g. Perdue, Benazzo, & Giuliano's (2002) study cited by the authors use 16 participants) rather than the, "usually one or two," (p. 29) participant studies of the past.
- ⊙ is *typically* linguistic drawn from linguistic theories, often of a functional nature.
- ⊙ sometimes employ study designs influenced by the epistemological approach to language development. A case in point is the longitudinal study conducted within a Vygotskian sociocultural framework by Belz and Kinginger (2002). The researchers documented turning-point incidents which were observed during a telecollaboration project. These significant incidents contributed to the learning of indexical politeness (specifically, the use of tu/vous and Du/Sein).
- ⊙ has the great ability to provide data for time relationships among variables, thus helping not only to describe occurrences and associations among variables, but also to explain causes and effects by looking at antecedent-consequent relationships, as in Belz & Kinginger's (2002) study mentioned in the previous point.

As noted by Ortega & Ibarra-Shea, the longitudinal SLA tradition, with small samples and short-span lengths of study, is quite similar to longitudinal research in the initial stages of first language acquisition. Detailed study cases, that go on for periods of several months up to five or six years, are the norm since this is the amount of "biological" time needed to study a certain aspect of child first language acquisition.

If you are interested in learning more about quantitative linguistics research, please refer to the *Journal of Quantitative Linguistics* accessible through the EbscoHost Research Databases which provides April 1999 – December 2005 coverage for this journal (see Appendix A for further relevant journals also accessible through EbscoHost).



### Second Trend:

## **Longitudinal Research on L2 Program Outcomes:**

The authors report that a different, less popular, kind of longitudinal design has been observed in recent SLA studies which Ortega & Ibarra-Shea call "programmatic" longitudinal research. By comparison to the descriptive-quantitative longitudinal type, this design is mainly used for evaluation of L2 curricular options. It employs large samples, longer periods of observation (4 to 6 years), and fewer data collection occasions spaced along wider time gaps (about 2 times per year). This type of research design strongly urges researchers to be patient with their

investigations since the key idea here is that certain outcomes only become evident after extended periods of observation.

The authors explain that programmatic longitudinal research addresses crucial questions for policies and practices in L2 programs. This fact is most evident when some representative studies are examined. Written by Lightbown et al. (2002), the participants of this study were a group of French-speaking Canadian school students who received all their English L2 instruction through a “self-access, comprehension-only experimental curriculum,” (p. 31). The group’s overall proficiency in English was charted during 6 years of comprehension-based instruction, and their L2 competency was also compared to that of students who studied English under the traditional audio-lingual curriculum, and to a third group of traditional program students. The authors point out that observing learners for 6 years makes this study one of the longest in longitudinal SLA research, focusing on group, rather than on individual, performance.

Another is the study in which Klapper & Rees (2003) undertook a four-year comparison between two groups of 57 British university students studying German. One group followed a traditional grammar (i.e. focus-on-forms) instruction curriculum and the other group experienced a focus-on-form curriculum. The two groups began their programs with similar scores, received near identical amounts of instructional time during the first two years of study, and both studied abroad for one year which later was revealed to be the “turning-point” in the traditional group’s progress. In all, the two groups started equal and finished equal, exhibiting interesting differences in the pace of development during the 4-year observation period.

### *Third Trend:*



## **The Longitudinal Investigation of L2 Instructional Effectiveness:**

According to Ortega & Iberri-Shea, there has been a tendency in recent quasi-experimental studies of instruction to feature longer-lasting interventions (8 weeks is quite common) and to include delayed posttests, from 1 to 3 months after instruction. The authors state that this is a great improvement since the majority of studies up until 1998 (as reported by Norris & Ortega’s well-known meta-analysis of 49 studies) featured short duration treatments (a maximum of 2 hours) and only 22 studies include a delayed posttest.

Some recent, not fully quasi-experimental, studies have applied longitudinal designs where no control or comparison group was employed. Such a study is illustrated by Kim & Hall (2002). Investigating instructional effectiveness, these researchers, like Belz & Kinginger (2002), used a Vygotskian framework to document L2 pragmatic learning through the study of “microgenetic change,” (p. 32). Specifically, they examined the benefits of interactive book sessions, occurring between teachers and ESL Korean students, over a period of 4-months of 30-minute biweekly meetings. The researchers found clear improvement in their subjects’ ESL pragmatic competencies in terms of most dependent variables being investigated.

Although the research trends in instructional effectiveness are encouraging, Ortega & Iberri-Shea point to an unfortunate discovery; that little progress has occurred regarding the use of time-series designs in SLA research. According to them, time-series design is the best formal strategy for longitudinally investigating effects of instruction. Its principles were presented as a promising longitudinal experimental research option in SLA by Mellow, Reeder, and Forster

(1996). However, after nearly a decade, Ortega & Iberri-Shea could find only one study of L2 instruction implementing a time-series longitudinal experimental design, namely, that of Ishida (2004). **Using time-series research designs to investigate the effects of instruction on SLA**

Ishida studied whether a routine of intensive recasts on the aspectual Japanese form *-te i-(ru)* delivered over four 30-minute, biweekly tutorial sessions would have durable effects on the oral accuracy exhibited on this form by four 2<sup>nd</sup> and 3<sup>rd</sup> “year semester students,” (p. 33). The time-series design was carried out through periodic data collection and delayed posttest observations. Ishida found that the intensive recasting treatment gave an instant positive effect which proves that intensive recasting can be associated with higher levels of accuracy, especially under tutoring conditions.

### ***Fourth Trend:*** **Recent Qualitative Longitudinal SLA Research**



According to Ortega & Iberri-Shea, qualitative longitudinal studies are based either on a Vygotskian sociocultural or a socialization theory perspective or influenced by both.

#### **☉ Vygotskian Sociocultural SLA Longitudinal Studies:**

(see Appendix B for an excellent explanation of Lev Vygotsky’s Social-Educational Theory as presented by Prof. Nada Dabbagh, 1999.)

These studies can be categorized into three types:

- (1) Microanalysis of paralinguistic features of interaction such as gesture development (e.g., McCaffery, 2002). Other paralinguistic features that can also be investigated according to (Mealing, 2003) are such as body language, expression, intonation, & volume which serve to convey the true meaning of the message.
- (2) Qualitative observation of classroom life and the emergence of motivation (e.g., Lantolf & Genung, 2002, as cited by the authors). Another very recent longitudinal study done on language learning motivation and its relationship with language choice and learning efforts is that of Csizer & Dornyei (2005) in which the authors analyze survey data collected in Hungary from 8,593 students, 13 to 14 years old, on two occasions, in 1993 and in 1999. Like Lightbown et al.’s (2002) 6-year investigation of the effect of different curricula, this study also lasted for 6 years which indicates that there is a growing, and indeed promising, tendency of significantly increasing the length-span of language research.
- (3) Autobiographical longitudinal documentation of the relationship between pronunciation and identity in L2 learners such as Marx’s (2002) identity development during 3 years of living in Germany. Ortega & Iberri-Shea discuss this study in great length, “because of its unique and promising approach to mapping longitudinal change qualitatively,” (p. 35).

#### **☉ Socialization Theory (Ethnographic) SLA Longitudinal Studies:**

Socialization theory has also started to contribute increasingly large numbers of longitudinal studies that chart the development of academic L2 proficiency. These studies usually adopt a case study methodology and use both qualitative approaches and interviews. Ortega & Iberri-Shea refer to Kobayashi’s (2003) research which studied two undergraduate Japanese students in a Canadian university during their 5-day preparation outside of class for their first group oral presentation, in their first semester of study abroad. He confesses that “true” longitudinal data

would be necessary to determine whether the preparation practices that are revealed in his study would eventually contribute to the development of students' future oral presentation efforts. (See Appendix C for an explanation of Language Socialization Theory)

Ortega & Iberri-Shea express their amazement at the fact that many longitudinal qualitative studies implementing a case study or ethnographic approach "end up reporting on only a small subset of the richer longitudinal data, making readers wait on a promised larger study ... that may take years to appear in print," (p. 36). A case in point is Al-Ghamdi's (1999) study on the effect of explicit instruction using L1. In his case study of an Arabic L1 learner of English, Al-Ghamdi acknowledges that one of the main limitations of his study was that the investigation period only lasted for 9 weeks and states that if he could repeat this study, he would test development for a longer period of time suggesting a 28-36 week span.

Ortega & Iberri-Shea rationalize this common phenomenon by stating that many researchers and dissertators alike feel the academic pressure to produce publications at a quick rate and that this type of pressure often prevents the opportunity for "multiple-year" involvement with the same site and participants. A more fundamental issue, however, is the fact that the authors repeatedly faced cases where it was unclear whether the study should, or should not, be considered longitudinal because the findings of such studies gave limited attention to the change(s) that took place over a certain period of time. Ortega & Iberri-Shea cite and briefly discuss three studies; Gebhard (2002), Jackson (2002) & Leki (2001), and then the authors report that although all three studies include features of ethnographic "longitudinal" studies, all three, in reality, do not "document and understand change over time". They only offer a "relatively static description of the problems they sought to understand," (p. 37).

If you are interested in learning more about qualitative studies in education, please refer to the *International Journal of Qualitative Studies in Education* also accessible through the EbscoHost Research Database which provides January 1997 – December 2005 coverage for this journal (see Appendix A for further relevant journals also accessible through EbscoHost).

## *Future Directions*.....



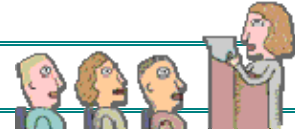
Ortega and Iberri-Shea close their survey of recent longitudinal SLA research by reflecting on some of the challenges and opportunities which await such research. According to them, the studies reviewed in this paper, together with other SLA longitudinal studies that have accumulated over the years have suggested certain observations and questions regarding the great benefits and the unique challenges of investigating L2 development over time, from a "truly longitudinal perspective," (p. 37). The authors divert the attention of researchers interested in this field of research to the fact that longitudinal research can be, "as diverse as the epistemological approaches that inspire it," (p. 37). Ortega & Iberri-Shea predict that this diversity is likely to continue in the future, and they hope it will also encourage "mixed methods" longitudinal research.

In fact, Ortega and Iberri-Shea urge their readers to take a look at Johnson & Onwuegbuzie's (2004) article titled *Mixed Methods Research: A Research Paradigm Whose Time Has Come*. Among the purposes of this article is to position mixed research as the natural complement to

traditional qualitative and quantitative research and to provide a framework for designing and conducting mixed methods research. Johnson & Onwuegbuzie maintain that a key feature of mixed methods research is its methodological eclecticism, which frequently results in superior research (compared to mono-method research).

Apparently, many researchers feel the same way, and in this spirit, a new type of journal titled, the *Journal of Mixed Methods Research* (JMMR), is currently being constructed. Its editors, Creswell et al. (2005) proudly explain that this is a new, quarterly international journal (first issue due January 2007) that aims to publish empirical, methodological, and theoretical articles about mixed methods research. They believe that the journal will serve as a unique outlet for innovative and influential work in the field of mixed methods research.

### *Wait, There's More!*



The following are some of the more common issues that Ortega & Iberri-Shea saw emerging across studies and authors.

#### © **How long is “Longitudinal”? Time Scales and Turning Points:**

According to Ortega & Iberri-Shea, longitudinal research mainly is defined by its long time span; however, not much is known about the “optimal length of observation,” (p. 37) for different types of longitudinal studies. One thing that the authors have observed, however, is that most recent longitudinal SLA studies span anywhere between 3 or 4 months and up to six years. This, they argue, seems related to two factors:

- (a) The influence of child first language acquisition studies, where longitudinal research is scaled on **biological time**.
- (b) The practical scaling of other studies on **institutional time**, particularly the one-semester and four-year periods found in tertiary education, where many SLA studies are conducted.

Ortega & Iberri-Shea suggest that both biological and institutional scales work best when key events and turning points in the social or institutional context investigated are considered. Indeed, such crucial turning points can be essential in determining the appropriate length of observation. For example, Klapper and Rees’ (2003) programmatic longitudinal SLA study documented the turning point of the “study abroad” experience and Belz and Kinginger (2002) recorded, “critical incidents involving the use of tu/vous and Du/Sein and decided to go as far before and after the incident in the data as was needed to trace the history of the phenomenon longitudinally,” (p. 38).

The authors optimistically foresee future SLA longitudinal studies that will attempt to (a) investigate individual change over time against “sociopolitical and historical time,” (p.38) and (b) engage in a clear discussion of the rationales for determining the appropriate length of time for investigating specific SLA research questions longitudinally. Actually, the authors didn’t have to wait for long; their call for exploring change over time against, e.g., sociopolitical time, has been recently realized. Although not an empirical paper, Swain & Lapkins’ (2005) article, for instance, first discusses the core features of immersion and that if these features are to retain their integrity, changes in pedagogy need to be made to reflect the evolving sociopolitical context of immersion education in Canada and possibly elsewhere. The article also sheds light on the new research that is being conducted within this field. As an example, the authors evaluate the use of the L1 in the classroom. They explain that while a main feature of immersion

education is the use of the L2 as the medium of instruction, new longitudinal research suggests that allowing a well judged use of the L1 on the part of learners may be necessary.

### ◎ **Multiwave Data Collection: How Many Waves, and How Comparable?**

The writers believe that a constitutive feature of longitudinal research is multi-wave data, because data are repeatedly collected to chart any possible change and progress over time. Hence, associated with the question of appropriate study length is that of optimal timing (frequency and spacing) of measurements; i.e., making the decision of how often participants need to be observed and data collected. The main challenge with multiple data collection is that when different tasks and topics are employed over the length of a longitudinal study, it then becomes difficult to distinguish the effect of different variables, e.g., time-induced and task /topic-induced variability. Nevertheless, Ortega & Iberri-Shea suggest a solution:

\* To plan cyclical elicitation points where similar tasks or content are used over equally-spaced waves (i.e. intervals).

\* These similar tasks are mixed together with a range of dissimilar tasks, also spaced at equal intervals over the span of the study.

\* This ensures fixed points of comparison as well as “strategic points of more varied performance,” (p. 40) that would improve both participants’ commitment and would enhance the quality of the longitudinal corpus available for study.

\* The authors urge longitudinal researchers to develop other creative strategies.

### ◎ **Innovative Use of Analytical Options for Quantitative Longitudinal SLA Research:**

Ortega & Iberri-Shea observe a general methodological weakness in current practices among longitudinal SLA researchers who employ quantitative data, predominantly in those studies that focus on program or instruction effects. This is so because quasi-experimental designs usually require the use of inferential statistical analyses and the authors report that only few studies have benefited from the statistical advances that began in the 1970s. They explain that, for instance, there is an absence of analysis of “magnitude of longitudinal change in longitudinal SLA studies (in the form of repeated-measures effect sizes,” (Ortega, 2003, as cited by Ortega & Iberri-Shea, p. 40). Trochim (2005) explains that inferential statistics are very valuable in trying to reach conclusions that extend beyond the immediate data alone. For instance, we can use inferential statistics to try to infer from the sample data what the population might think. Or, we may use inferential statistics to make judgments of the probability that an observed difference between, e.g., groups is a dependable one or one that might have happened by chance in a particular study. Thus, we use inferential statistics to make inferences from our data to more general conditions.

Thus, as more large-scale longitudinal quantitative studies are conducted in SLA, the more crucial it becomes to learn the use of various up-to-date statistical analytical approaches that are available for longitudinal designs & data and with the help of computer-based statistical programs, such as the SPSS program, dealing with statistics has never been more convenient since these programs have the ability to handle complex sets of data, at record speeds. (see Appendix D for “SPSS for Windows” tutorial hyperlinks).

### ◎ **Strengthening Longitudinal Qualities of Ethnographic Studies:**

According to the two researchers, when it comes to ethnographic qualitative studies of L2 learners, what is considered as “longitudinal” sometimes cannot be so easily decided. It is true that “length of study” and “multi-wave data collection” are both definitional features of

longitudinal research in the social sciences, but capturing change over time and establishing antecedent-consequent relations are also considered as chief definitional features. Ortega & Iberri-Shea inform their readers that even though there are several principles (such as entering multiple-year investigations with explicit goals in mind) which unquestionably contribute to a well-designed longitudinal study, it is not crucial, however, to abide by such disciplined practices. The authors note that some ethnographic studies, even those conducted under less rigorous conditions, can also provide accurate conceptualizations of change, progress and even abundant information on antecedent and consequent relations in a particular context, such as that of Maxwell's 2004 study (as cited by the authors).

The authors report on some L2 ethnographies that have been able to successfully include the best features of qualitative research utilizing ethnographic techniques and adopting a complex longitudinal view on L2 learners' lives. For example,

1. Peirce (1995) documented changes in five immigrant women's motivation and venture to learn and use English.
2. Vavrus (2002) reported on a detailed longitudinal investigation of high school students' changing views of the benefits of English-medium instruction vs. vernacular education in Tanzania.

All in all, Ortega & Iberri-Shea believe that further explicit discussions will arise in the future regarding what makes a study "longitudinal" and what the unique benefits and challenges of doing longitudinal SLA research are. They also hope that researchers will increasingly investigate second language and literacy development longitudinally. The authors assert that longitudinal findings can have a vital role in advancing SLA theories and research programs as they will hopefully help in understanding the proper timing, duration, and content of optimal educational practices for L2 learning across different pedagogical settings and multilingual contexts.

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## Appendix A

### Relevant Journals Accessible Through EbscoHost Databases

**1. Qualitative Inquiry**

Sage Periodicals Press

Coverage: Volume 5, Number 1 (March 1, 1999) - Volume 11, Number 6 (December 2005)

**2. Qualitative Research**

Sage Publications (London)

Coverage: Volume 1, Number 1 (April 1, 2001) - Volume 5, Number 4 (November 2005)

**3. Qualitative Research in Psychology**

Arnold

Coverage: Volume 1, Number 1 (January 01, 2004) - Volume 2, Number 4 (October 2005)

**4. Annual Review of Applied Linguistics**

Cambridge University Press

Coverage: Volume 23, Number 1 (January 2003) - Volume 25, Number 1 (January 2005)

**5. International Review of Applied Linguistics in Language Teaching (IRAL)**

Walter de Gruyter GmbH & Co

Coverage: Volume 42, Number 4 (October 2004) - Volume 43, Number 1 (January 2005)

**6. ITL. Review of Applied Linguistics**

Peeters Publishers

Coverage: Volume 143, Number 1 (Nov. 2005) - Volume 143, Number 1 (November 2005)

**7. Applied Linguistics**

Oxford University Press

Coverage: Volume 20, Number 1 (March 1999) - Volume 26, Number 4 (December 2005)

**8. International Journal of Applied Linguistics**

Blackwell Publishing Ltd

Coverage: Volume 11, Number 1 (June 2001) - Volume 15, Number 3 (November 2005)

## Appendix B

### Lev Vygotsky's Social-Educational Theory

Lev Vygotsky, born in the U.S.S.R. in 1896, is responsible for the social development theory of learning. He proposed that social interaction profoundly influences cognitive development. Central to Vygotsky's theory is his belief that biological and cultural development do not occur in isolation (Driscoll, 1994).

Vygotsky approached development differently from Piaget. Piaget believed that cognitive development consists of four main periods of cognitive growth: sensorimotor, preoperational, concrete operations, and formal operations (Saettler, 331). Piaget's theory suggests that development has an endpoint in goal. Vygotsky, in contrast, believed that development is a process that should be analyzed, instead of a product to be obtained. According to Vygotsky, the development process that begins at birth and continues until death is too complex to be defined by stages (Driscoll, 1994; Hausfather, 1996).

Vygotsky believed that this life long process of development was dependent on social interaction and that social learning actually leads to cognitive development. This phenomena is called the Zone of Proximal Development . Vygotsky describes it as "the distance between the actual development level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (Vygotsky, 1978). In other words, a student can perform a task under adult guidance or with peer collaboration that could not be achieved alone. The Zone of Proximal Development bridges that gap between what is known and what can be known. Vygotsky claimed that learning occurred in this zone.

Therefore, Vygotsky focused on the connections between people and the cultural context in which they act and interact in shared experiences (Crawford, 1996). According to Vygotsky, humans use tools that develop from a culture, such as speech and writing, to mediate their social environments. Initially children develop these tools to serve solely as social functions, ways to communicate needs. Vygotsky believed that the internalization of these tools led to higher thinking skills. When Piaget observed young children participating in egocentric speech in their preoperational stage, he believed it was a phase that disappeared once the child reached the stage of concrete operations. In contrast, Vygotsky viewed this egocentric speech as a transition from social speech to internalized thoughts (Driscoll, 1994). Thus, Vygotsky believed that thought and language could not exist without each other.

### **Application of the Social Development Theory to Instructional Design**

Traditionally, schools have not promoted environments in which the students play an active role in their own education as well as their peers'. Vygotsky's theory, however, requires the teacher and students to play untraditional roles as they collaborate with each other. Instead of a teacher dictating her meaning to students for future recitation, a teacher should collaborate with her students in order to create meaning in ways that students can make their own (Hausfather, 1996). Learning becomes a reciprocal experience for the students and teacher.

The physical classroom, based on Vygotsky's theory, would provide clustered desks or tables and work space for peer instruction, collaboration, and small group instruction. Like the environment, the instructional design of material to be learned would be structured to promote and encourage student interaction and collaboration. Thus the classroom becomes a community of learning.

Because Vygotsky asserts that cognitive change occurs within the zone of proximal development, instruction would be designed to reach a developmental level that is just above the student's current developmental level. Vygotsky proclaims, "learning which is oriented toward developmental levels that have already been reached is ineffective from the view point of the child's overall development. It does not aim for a new stage of the developmental process but rather lags behind this process" (Vygotsky, 1978).

Appropriation is necessary for cognitive development within the zone of proximal development. Individuals participating in peer collaboration or guided teacher instruction must share the same focus in order to access the zone of proximal development. "Joint attention and shared problem solving is needed to create a process of cognitive, social, and emotional interchange" (Hausfather, 1996). Furthermore, it is essential that the partners be on different developmental levels and the higher level partner be aware of the lower's level. If this does not occur, or if one partner dominates, the interaction is less successful (Driscoll, 1994; Hausfather, 1996).

### **Instructional Strategies and Their Implementation in Instruction**

Scaffolding and reciprocal teaching are effective strategies to access the zone of proximal development. Scaffolding requires the teacher to provide students the opportunity to extend their current skills and knowledge. The teacher must engage students' interest, simplify tasks so they are manageable, and motivate students to pursue the instructional goal. In addition, the teacher must look for discrepancies between students' efforts and the solution, control for frustration and risk, and model an idealized version of the act (Hausfather, 1996).

Reciprocal teaching allows for the creation of a dialogue between students and teachers. This two way communication becomes an instructional strategy by encouraging students to go beyond answering questions and engage in the discourse (Driscoll, 1994; Hausfather, 1996). A study conducted by Brown and Palincsar (1989), demonstrated the Vygotskian approach with reciprocal teaching methods in their successful program to teach reading strategies. The teacher and students alternated turns leading small group discussions on a reading. After modeling four reading strategies, students began to assume the teaching role. Results of this study showed significant gains over other instructional strategies (Driscoll, 1994; Hausfather, 1996). Cognitively Guided Instruction is another strategy to implement Vygotsky's theory. This strategy involves the teacher and students exploring math problems and then sharing their different problem solving strategies in an open dialogue (Hausfather, 1996).

Dabbagh (1999)

## Appendix C

### Language Socialization Theory

Language socialization theory offers a framework for the study of communicative practices in home and school communities that integrates anthropology, linguistics, psychology, and sociology - disciplines long acknowledged as crucial to educational research in Africa but too seldom combined (Dumont & Maurer, 1995; Mateene, Nwachukwu, & Dalby, 1979; Santerre & Mercier-Tremblay, 1982). Based on the premise that language acquisition and culture acquisition are interdependent, language socialization theory studies the interaction of these two processes towards the better understanding of both (Ochs & Schieffelin, 1995).

Language socialization research examines recurrent communicative interactions between novice (or less competent) members and expert (or more competent) members of a group in order to understand how such interactions shape novices' development of communicative competence. Further, by embedding the microanalysis of novice-expert interactions in the broader ethnographic study of the community, language socialization research explores how 'communicative practices of experts and novices are organized by and organize cultural knowledges, understandings, beliefs, and feelings' (Schieffelin & Ochs, 1996, p. 255). Language socialization research has provided insight into culturally specific ways of using, teaching, and learning language in many different settings (e.g., Demuth, 1986; Heath, 1983; Kulick, 1992; Ochs, 1988; Palotti, 1996; Peirce, 1995; Poole, 1992; Rymes, 1997; Schieffelin, 1990; Schieffelin & Gilmore, 1986; Siegal, 1996; Willet, 1995).

When first starting school, a child relies on ways of communicating and learning acquired in her community (Johnson, 1995). For many children, however, the language behaviours expected at home are significantly different from those required at school, and such discontinuity has been shown to have implications for educational practice (e.g., Boggs, 1985; Christie & Harris, 1985; Crago, 1992; Heath, 1983, 1986; Phillips, 1983). When teachers are unfamiliar with community patterns of language use and interaction, they can easily misread students' abilities and intentions and may use styles of instruction that conflict with community norms (Delpit, 1995). If the behaviours and skills acquired at home are impeded or punished and those of the classroom are not explicitly taught, the child will have great difficulty participating successfully in classroom activities (Cook-Gumperz, 1982; Johnson, 1995).

In her study of primary language socialization in two Inuit communities, Crago (1992) observed that Inuit children learned from their caregivers to communicate in ways very different from those expected by their non-Inuit teachers. Connecting this incongruity with the difficulties experienced by Inuit students in classroom learning of second languages and with the frustrations expressed by their teachers, Crago argues that second language (L2) teaching strategies must take into account culturally specific patterns of novice-expert communicative interaction.

Mealing (2003)

## Appendix D

The first module introduces readers to the **SPSS for Windows** environment, and discusses how to create or import a dataset, transform variables, manipulate data, and perform descriptive statistics. The second module describes some commonly used inferential statistics, and the third module discusses graphical display of output.

### **Module 1: SPSS for Windows: Getting Started**

- Section 1: Overview
  - Introduction to SPSS
  - Overview of SPSS for Windows
- Section 2: Entering Data in SPSS
  - Starting SPSS
  - The Data Editor
  - The Syntax Editor
  - The Output Viewer
  - Importing Data from Excel Files
  - Importing Data from ASCII Files
- Section 3: Modifying and Organizing Data in SPSS
  - Creating and Defining Data
  - Inserting Cases and Variables
  - Computing New Variables
  - Recoding Variables
  - Sorting Cases
  - Selecting Cases
  - Listing Cases

### **Module 2: Descriptive and Inferential Statistics**

- Section 4: Summarizing Data
  - Descriptive Statistics
  - Frequencies
  - Crosstabulation
- Section 5: Inferential Statistics
  - Chi-Square
  - T test
  - Correlation
  - Regression
  - General Linear Model

### **Module 3: SPSS for Windows: Displaying Data**

- Section 6: Displaying Data
  - Tables
  - Exporting Tables in SPSS
  - Bar Graphs
  - Scatterplots
  - Modifying and Exporting Graphs
  - Interactive Charts