IJEP
International Journal of Educational Psychology

Volume 1, Number 2



hipatia Press
www.hipatiapress.com

IJEP
International Journal of Educational Psychology

Hipatia Press
www.hipatiapress.com

Instructions for authors, subscriptions and further details:

http://ijep.hipatiapress.com

# Children's Reflections on Two Cultural Ways of Working Together: "Talking with Hands and Eyes" or Requiring Words

Amy L. D. Roberts & Barbara Rogoff [1]

1) University of California, Santa Cruz, United States of America

Date of publication: June 24th, 2012

To cite this article: Roberts, A., & Rogoff, B. (2012). Children's Reflections on Two Cultural Ways of Working Together: "Talking with Hands and Eyes" or Requiring Words. *International Journal of Educational Psychology, 1*(2), 73-99. doi: 10.4471/ijep.2012.06

To link this article: http://dx.doi.org/10.4471/ijep.2012.06

*IJEP – International Journal of Educational Psychology Vol. 1 No. 2*
*June 2012 pp.73-99*

# Children's Reflections on Two Cultural Ways of Working Together:"Talking with Hands and Eyes" or Requiring Words

Amy L. D. Roberts & Barbara Rogoff
*University of California, Santa Cruz*

## Abstract

Forty-four pairs of Mexican-heritage and European-heritage US children were asked to characterize differences between two contrasting cultural patterns of working together in video clips that showed a) Mexican Indigenous-heritage children working together by collaborating, helping, observing others, and using nonverbal as well as verbal communication, and b) middle-class European-American children working alone and using predominantly verbal communication.

Through experience in two cultural settings, bilingual Mexican-heritage US children may become familiar with these contrasting cultural patterns that have been identified in research. Mexican-heritage US children characterized the clips in ways that corresponded with researchers' descriptions more often than did European-heritage children, when discussing working together and helping but not when discussing communication.

The children from the two backgrounds differed in their treatment of talk. In addition to talking more overall, half of the European-heritage US children considered talk a requirement for working together or helping, excluding nonverbal communication as a way of working together or helping. In contrast, the Mexican-heritage US children included nonverbal communication as a means of working together and helping, and some seemed to include nonverbal communication as a form of talking.

**Keywords:** communication, collaboration, nonverbal, culture, Intent Community Participation


ISSN 2014-3591
DOI: 10.4471/ijep.2012.06

This study examined whether bilingual Mexican-heritage US children viewing video clips of other children would be more likely than middle-class European American children to identify contrasting cultural patterns of interaction found in previous research. One cultural pattern has been noted among Mexican Indigenous-heritage children: working together with collaboration and helping, attentiveness to others, and extensive nonverbal communication (with or without talk); the other pattern has been observed to be common among middle-class European American children: working primarily solo with reliance on talk.

Many bilingual Mexican-heritage US children are likely to experience these contrasting approaches for working together across their home and school environments. Having experience with two cultural approaches, and transitioning between them, may encourage children to identify and reflect on the cultural practices they are exposed to (Orellana, 2009; Zentella, 1997). In contrast, middle-class European American children are likely to experience similar ways of working together at home and at school, which may make it less likely for them to identify other ways of organizing interaction.

In addition to investigating the correspondence of children's reflections with the two patterns, we were interested in insights that the children might offer regarding cultural differences in ways of working together. As we will discuss, the children's comments revealed unexpected cultural differences in whether they considered working together to be done exclusively through talk and whether nonverbal conversation is a kind of talk.

## Two Cultural Patterns of Interaction

Research in Indigenous-heritage communities of the Americas has noted children's extensive collaboration and help in ongoing community activities, observation of others' efforts, and use of nonverbal communication (with or without talk) in reference to ongoing activity (Cazden & John, 1971; Chamoux, 1992; Chavajay & Rogoff, 2002; Correa-Chávez, Roberts, Martinez Pérez, 2011; de Haan, 1999; de Leon, 2000; Gaskins, 1999; Mejía-Arauz, Rogoff, Dexter, & Najafi,

2007b; Paradise, 1994, 1996; Philips, 1972; Rogoff, Mistry, Göncü, & Mosier, 1993). These common ways of working together in Indigenous-heritage communities of Central and North America are posited to form a cultural pattern, called learning through *intent community participation* (Rogoff, Paradise, Mejía-Arauz, Correa-Chávez, & Angelillo, 2003; Rogoff, Moore, Najafi, Dexter, Correa-Chávez, & Solís, 2007; see also Paradise & Rogoff, 2009).

A contrasting cultural pattern emphasizes solo engagement and reliance on verbal communication out of the context of ongoing, shared activity, such as in Western schooling (Candela, 2005; Lipka, 1994; McNaughton, 2005; Philips, 1972; Sharan & Sharan, 1992; Rogoff et al., 2007). Children from highly schooled communities tend to engage in activities individually, even in the presence of a group, rather than in multi-way group engagements that have commonly been found in Indigenous-heritage communities of the Americas (Chavajay & Rogoff, 2002; Mejía-Arauz et al., 2007b; Rogoff et al., 1993, 2003). Middle-class European American children are likely to experience heavy use of talk and a focus on solo work at both home and school (Heath, 1983; Keller et al., 2006; Laosa, 1980; Tapia Uribe, LeVine, & LeVine, 1993).

## Children's Reflections on Cultural Patterns in the Organization of Interaction

Many bilingual Mexican-heritage US immigrant children may be familiar with the forms of working together prevalent in Indigenous-heritage communities of the Americas as well as those of schools (Correa-Chávez, Rogoff, & Mejía-Arauz, 2005; Mejía-Aráuz, Rogoff, Najafi, & Dexter, 2007b; Mejia-Arauz, Rogoff, & Paradise, 2005). Mexican immigrants to California often come from rural communities in Michoacán, Jalisco, Guanajuato, and more recently Chiapas and Oaxaca, Mexico, where prior generations in many communities considered themselves Indigenous (López, Correa-Chávez, Rogoff & Gutiérrez, 2010; Passel, 2004). Ethnographic accounts of rural Mexican communities often describe practices that have also been observed in Indigenous communities, including collaboration, helping, observation, and extensive nonverbal communication (Lorente, 2006; López, Najafi,

Rogoff, & Mejía-Arauz, in press).

There are only a few studies of children's reflections on cultural practices. Young children associated their ethnic group membership with participation in cultural routines such as attending church (Marks, Szalacha, Lamarre, Boyd, & Coll, 2007). Similarly, bilingual children are especially aware of properties of language and quickly distinguish when to use which set of linguistic tools as well as the significance of their choices regarding participation in language communities (Bialystok, Craik, Green, & Gollan, 2009; Brown, 2006; Orellana, 2009; Zentella, 1997). The privileged status of school ways may accentuate distinct patterns of interaction for children from nondominant communities (Erickson, 1987; Hurtado & Gurin, 2004).

With practices somewhat uniform across settings, middle-class European American children may have limited opportunities to reflect on the dominant cultural practices of US schools or on the differences between these and other ways of organizing learning. In addition, privileged status may make it difficult for middle-class European American children to notice or discuss racial and ethnic differences.

## The Present Study

Our study examined children's reflections on differences in the ways triads of Mexican and US Anglo children, shown in four video clips, worked together as they folded an origami frog during a scripted demonstration. We selected clips that epitomized the cultural contrasts in children's interactions found in prior research (reviewed above). Two clips showed Mexican Indigenous-heritage children collaborating, helping, attentive to each other's folding, and using nonverbal conversation. The other two clips showed middle-class European American children working primarily solo and chatting, with limited helping, observing each other, or nonverbal conversation.

We expected the bilingual Mexican-heritage US children to be more likely than middle-class European American ("Anglo") children to identify the following differences that correspond with patterns found by researchers:

- More *collaboration* and *helping* in the Mexican Indigenous-heritage clips, using more *attention to each other* and *nonverbal communication* (with or without talk),
- More solo work and more exclusively *verbal communication* among the children in the middle-class European American clips.

We also explored the children's explanations of the cultural patterns they saw for potential insights; interesting patterns appeared in their reflections about nonverbal communication and talk.

## Method

### Participants

The participants were 23 pairs of monolingual Anglo children and 21 pairs of bilingual Mexican-heritage US children with likely roots in parts of Mexico with Indigenous histories, all attending California elementary schools. Most of the children were in fourth or fifth grades (ages 9-11); a few children from both backgrounds were in sixth grade; grade levels did not differ significantly across the two backgrounds. All pairs were of the same gender; 12 pairs from each cultural background were female. Children were contacted through their schools or after-school centers. The children's parents provided information on family demographics, nation of origin, and languages spoken in the home in a short telephone or printed questionnaire.

Almost all the Mexican-heritage US children were born in the US (of the 62% whose parents responded to the question, only 8% were born in Mexico). Most of their parents were born in Mexico (only 16% were born in the US). About half of the Mexican-heritage US parents had completed high school (M = 10 grades); 63% worked in service jobs such as hospitality work, childcare, or landscaping. All the Mexican-heritage US pairs reported that they spoke Spanish at home; in 9 of the 21 pairs at least one child also spoke English at home. Most of the Mexican-heritage pairs (76%) had visited Mexico; all had family in Mexico and 3 children had gone to school there.

All of the Anglo children whose parents responded to these questions (83% did so) were born in the US and had parents who were born in the US and had completed at least 12 grades (M = 15 grades). Parents worked a wide range of jobs such as cashiers, administrative assistants,

scientists, and CEOs. All of the Anglo pairs spoke English exclusively at home. Less than half (35%) had been to Mexico, usually to a resort or on a cruise; only 2 children reported having family or friends in Mexico and none had gone to school there.

## Procedure

The videotaped sessions took place at a quiet table in the children's school or afterschool center. The bilingual Mexican-heritage research assistant (RA), blind to the hypotheses of the study, followed a script using the language the children preferred, either English or Spanish. In all but one case the interview was held predominantly in English, although several Mexican-heritage US pairs spoke in Spanish to each other and in English to the RA.

The RA first engaged in a warm-up with each pair (decorating a paper bag to keep their origami frog in and conversing). Then she showed the pair how to fold an origami frog, in preparation for viewing videoclips of other children folding the same figure according to the same script. The origami folding script was designed to be informal, encouraging children to help each other and primarily showing rather than telling the children how to make the folds without controlling children's attention or progress (see Mejía-Arauz et al., 2005). The RA then showed the clips to each pair, after which she invited them to view the clips again without her so they could discuss the differences in how the children in the clips interacted. After the children reported their initial ideas of differences, the RA prompted them with questions related to differences observed in research.

***Viewing the clips.*** The pairs of children watched four 20-second clips of children making the origami frog, selected from a previous study (Mejía-Arauz, Roberts, & Rogoff, 2007a). The four clips consisted of a triad of girls and a triad of boys from Guadalajara, Mexico, and a triad of girls and a triad of boys from California. The children in the Mexican video clips were of Indigenous descent, with Indigenous Mexican features; they whispered a few words in Spanish (indecipherable to native speakers). The children in the US clips were white and spoke in English.

We selected clips that clearly showed the differences seen in previous research. The two Mexican Indigenous-heritage triads collaborated, helped, observed each other, and used nonverbal conversation; the two middle-class European American triads worked alone and chatted. The clips were similar in other respects, such as the children's enjoyment of the activity and being at the same point in folding (a segment in which an adult was present but not involved with the children).

The clips were played by clicking on still-frame images on a simple menu screen presented on a laptop computer (see Figure 1). Children were shown both clips from one place and then both clips from the other place. The order of presentation of the clips from the two places was counterbalanced, as was their left-right position on the screen.

*Figure 1*. The menu screen of the DVD used to present the four video clips

The RA explained that the children in the clips were from a school in Mexico and a school in California, referring to the clips as "the ones from Mexico" and "the ones from California." (Here we abbreviate the Mexican Indigenous-heritage clips as *MexIndigH* clips and the

middle-class European American clips as *MCEurAm* clips.)[1]

The RA asked the pair to focus on the differences between the two schools in how the children work together, explaining that she was interested in their insights because they are kids and might see things that adults could miss. She told them that the children in the videos were shown how to make the frog in exactly the same way as they were and that all the children in the clips finished the folding correctly. She showed each pair the four clips without asking questions or prompting children to talk about what they saw. If they began to discuss the clips, the RA waited before playing the next clip to allow for conversation between the children; she did not enter in.

After watching all four clips with the children, the RA told them that she was going to let them look at the clips together, without her, to get ideas of the differences in how the kids work together on the folding. She checked that the children knew how to play the clips on their own, then asked them to let her know when they were "ready to talk about their ideas about differences in how the kids from the two places work together," and then she sat at a table a few feet away. Both children's conversations with and without the RA present were recorded and analyzed.[2]

***Reflecting on differences.*** When the children told her they were ready (or after 5 minutes if they had not called her), the RA rejoined them and asked, "What differences did you notice in how the kids from the two places worked together on the folding?" After the children reported what they noticed, the RA asked a series of focused questions, querying the children if needed to clarify which clips they referred to.

The questions in the first half of the interview were designed to elicit the children's characterizations of differences in how the children from the two places worked together:

1. Did kids from one place *work together more* on the frogs?
2. Did kids from one place *work alone more* on the frogs?
3. Were there differences in how much the kids from the two places *paid attention* to how the other kids were folding? How did they pay attention to each other?
4. Were there differences in how much the kids from the two places

*helped* each other fold? What did they do?

5. Were there differences in how the children from the two places *communicated*?
6. Did the kids from one place *talk less* than others?
7. Were the groups that talked less *communicating in some other way*? How?

The second half of the interview dealt with children's explanations of the reasons for, and the origins of, the differences they had just described:

1. What makes them work together differently? What do you think?
2. How do you think they learned to work together in those ways?
3. Do you think the differences relate to where the kids are from? Why?
4. Which place is most like how you worked together when you folded the frog? What did you do that was most like them?
5. Which of those ways is more like how your parents would want you to act?

The videotaped sessions lasted an average of 25 minutes ($SD$ = 3.2), with no significant difference between the two backgrounds in the length of the interview. A procedural check of 50% of the data verified that the script was followed with all participants, with only occasional slight changes in the wording of questions (which did not change their meaning).

## Coding

A bilingual Mexican-heritage coder, blind to the hypotheses, first recorded the pair's words and nonverbal communication, as well as relevant contextual information. She then identified each pair's (not individual children's) statements of differences that related to our questions, in 5 topics (listed below), and she coded whether these statements corresponded with previous research. She also coded the pair's explanations of the differences they reported. Fifty percent of the data were coded for reliability. The 5 topics were:

- *working together* or *working alone* included statements such as: "did it as a group," "cooperated," "did it by themselves," "were independent," or "ignored the others",

- *helping* or *not helping* included statements such as: “fixed it for them,” or “showed them how,”
- *paying attention to each other* or *not paying attention to each other* included statements such as: “watched each other,” “monitored her folds,” or “spacing out”,
- *talking more* or *talking less* included statements such as: “were talkative,” “were quiet” or “didn’t talk”,
- *other forms of communication* included statements such as “talked with their hands and eyes” and “communicated with looks”.[3]

***Raw number of statements regarding each topic***. The coder segmented the children’s comments into *topic statements*— stretches of conversation that stick to a single topic, ending when a new topic emerges or there is a significant pause in the conversation (such as pausing to play a clip). A topic statement could last for a few words or many conversational turns by one or both children. The raw number of topic statements was reliable across coders: working together, $r = .90$; helping, $r = .93$; paying attention, $r = .94$; amount of talk, $r = .96$; other communication, $r = .96$.

***Correspondence with research***. Each topic statement was coded for whether the children characterized the clips in ways that correspond with previous research — i.e., saying that the *MexIndigH* clips showed more collaboration, helping, paying attention to each other, or nonverbal conversation, or saying that *MCEurAm* clips showed more working alone or talking. The rare cases in which children claimed that there were no differences between the groups or characterized the two clips from the same place differently were judged as contradicting research. If children changed their characterization of a clip within a topic statement, their final opinion was coded for that topic statement. Confusing statements in which the coder could not tell whether the children’s views were consistent with or contradicted the research were counted in the analysis of the raw number of statements of each topic but were not included in the analysis of correspondence with research. (About 10% of statements were confusing, mostly in the topic of helping — seemingly due to Anglo pairs trying to figure out whether it is possible to help without talking — discussed later).

Because the pairs sometimes changed their characterization of a topic in different topic statements across the session, our measure of correspondence with research was the percent of each pair's topic statements for each topic that corresponded with the patterns found in research. The percentage was calculated out of all topic statements that corresponded with research, contradicted research, were inconsistent, or showed disagreement within the pair of children. (Confusing statements were excluded from the calculation of percentages.)

The percentage of topic statements that corresponded with or contradicted research was reliable: working together, $r = .97$ and .99, respectively; helping, $r = .97$ and .99; paying attention, $r = .90$ and .88; amount of talk, $r = .98$ and .91; other communication $r = .83$ and 1.

***Cultural explanations of differences***. The coder determined whether the pair explained the differences between the two places in terms of *cultural practices*, citing communities' customary ways of working together as enduring practices and generalizing beyond individual habits or features of the particular event. For example, "kids from there are used to working in groups more" or "kids from Mexico use sign language." (The remaining explanations often focused on imagined personality or situational differences that went beyond the information provided in the clips or by the researchers, such as that children in the clip were quiet because they are shy or did not know the other children.) The coding of cultural explanations was reliable, $r = .83$, $p < .01$.

## Results

We first present the raw frequency of statements on each topic, and then report the extent to which the children's reflections were consistent with cultural patterns identified in research. Finally, we examine whether the children gave cultural explanations of the differences they noted.[4]

### Raw Number of Statements of Each Topic

The Anglo children talked significantly more than the Mexican-heritage US children, producing 47% more topic statements overall. This pattern of more talking by the Anglo pairs appeared within all 5 topics,

and was significant for all topics except helping and paying attention (see Table 1).

Table 1
*Mean raw frequency (and SD) and significance of statements in the 5 topics and overall, across the two backgrounds*

| | Mexican-heritage US | Anglo | *significance* |
|---|---|---|---|
| Working together | 3.1 (1.9) | 4.8 (2.9) | t = 2.33, p = .01 |
| Helping | 7.4 (4.0) | 8.4 (5.8) | t = .71, p = .25 |
| Paying attention | 2.3 (1.8) | 2.8 (3.3) | t = .63, p = .27 |
| Amount of talk | 3.9 (2.5) | 7.9 (3.1) | t = 4.75, p < .001 |
| Other communication | 1.1 (1.0) | 2.2 (1.6) | t = 2.51, p < .01 |
| Total topic statements | 17.8 (6.1) | 26.1 (10.5) | t = 3.24, p < .01 |

Tellingly, the Anglo children's greater amount of talking was most notable in their reflections on the amount of talking of the children in the clips. This was partially due to their struggles with determining whether *MexIndigH* clips could be working together or helping if they were not talking. For example, after an Anglo child characterized the *MCEurAm* clips as working together and talking ("They're doing it all together, and they're talking"), he puzzled about the *MexIndigH* clips without coming to a conclusion, "they're not talking at all but they're still doing it, so it's...".

The majority of pairs from both cultural backgrounds talked about all 5 topics.[5] For both backgrounds, the topic of helping was the most frequently mentioned (among the Mexican-heritage US children, almost twice as much as other topics); amount of talk was the next most common topic, then extent of working together, next extent of paying attention, and the least commonly mentioned topic was use of other forms of communication.

There were no main effects for gender in the raw frequency of topic statements, and only one gender interaction: The Mexican-heritage US boys mentioned paying attention more often than Mexican-heritage US girls, $F(1, 19) = 5.48$, $p < .05$.

## Correspondence with Research Patterns

Our analysis focuses on the extent to which children's reports of cultural differences correspond with research describing *MexIndigH* children collaborating, helping, attentive to each other's folding, and using nonverbal conversation, and *MCEurAm* children working primarily solo and chatting. Mexican-heritage US pairs described the clips in ways that correspond with research in 82.5% of statements overall. At least 80% of their statements corresponded with research for all topics except paying attention (see Table 2). In contrast, a significantly lower percentage of Anglo pairs' descriptions corresponded with research (67.5% overall). Less than 60% of Anglo pairs' statements corresponded with research for all topics except for talk and other communication (which agreed with research in over 90% of statements).

Differences between the two backgrounds in statements that contradict research followed the same pattern as statements that correspond with research, but were more extreme. (See Table 2.) The most marked difference between cultural backgrounds was in the topic of working together, where Anglo pairs contradicted research in 63% of their statements, compared with 19% for the Mexican-heritage US pairs.

We tested our prediction — that Mexican-heritage US children would identify cultural patterns consistent with previous research more often than Anglo children — with planned comparisons. These are conservative, focused analyses appropriate to directional predictions (Rosnow & Rosenthal, 1996). In general, our prediction was upheld (See Table 2).

Table 2
*Mean percentage (and SDs) of statements in the 5 topics and overall that corresponded with or contradicted research patterns, across the two backgrounds, and significance*

| Topic | Correspond with Research | | | Contradict Research | | |
|---|---|---|---|---|---|---|
| | Mexican-heritage US | Anglo | Planned comparisons | Mexican-heritage US | Anglo | Planned comparisons |
| Working together | 81.1 (33.5) | 36.2 (38.6) | t(41) = 4.04, p < .001 | 18.9 (33.5) | 63.0 (38.0) | t(41) = 4.00, p < .001 |
| Helping | 84.9 (18.3) | 57.7 (33.8) | t(42) = 3.26, p = .001 | 15.2 (18.4) | 41.7 (33.4) | t(42) = 3.22, p = .001 |
| Paying attention | 71.3 (37.7) | 57.2 (45.3) | t(36) = 1.06, p = .15 | 24.5 (34.3) | 42.8 (45.4) | t(36) = 1.41, p = .17 |
| Amount of talk | 81.0 (35.9) | 93.5 (10.1) | t(42) = -1.60, p = .059 | 15.1 (32.1) | 4.0 (7.1) | t(42) = -1.60, p = .059 |
| Other communication | 86.7 (35.1) | 91.6 (24.3) | t(32) = -.48, p = .32 | 13.3 (35.1) | 7.4 (24.2) | t(32) = -.59, p = .29 |
| Overall | 82.5 (13.9) | 67.5 (15.4) | t(29) = 2.82, p < .01 | 12.7 (13.0) | 27.7 (16.6) | t(29) =2.82, p < .01 |

Although the findings fit our prediction in the topics of working together and helping, the difference went in the opposite direction for amount of talk. This pattern seems to stem in part from differences in children's ideas about talk: Some Mexican-heritage US children seemed to regard nonverbal communication as talk, thereby judging the *MexIndigH* clips as including more talk than indicated by researchers who have coded these particular clips, and than the general patterns noted in previous research. In turn, many Anglo children seemed to *exclude* nonverbal communication as a way of working together and helping, thereby judging the *MexIndigH* clips as including less working together and helping than the coding of these clips by researchers and than general patterns noted in research. We examine the evidence for these interpretations below.

***Working together and Helping***. In line with our expectations,

Mexican-heritage US children's comments showed greater correspondence with research than did Anglo children's, by stating that *MexIndigH* children work together and help each other more than *MCEurAm* children. (See Table 2.) Children from both backgrounds often drew connections between the topics of working together and helping, such as in reasoning, "They worked together by helping each other."

The Anglo children's lower correspondence with research for working together and helping was due in part to a view that because children in *MexIndigH* clips did not talk much, they did not work together or help. Half of the Anglo pairs (11 of 23) mentioned verbal communication as necessary for working together or helping, compared to only 1 such instance among the 21 US Mexican heritage pairs, $Chi^2$ (1) = 9.1, $p$ = .003. For example:

> One pair, when asked why they thought the children in the *MCEurAm* clips worked together more, referred to the *MexIndigH* children and explained, "because they don't talk."

> A child responded to the RA's question "Do kids from one place work alone more on folding the frog?" by commenting "Yeah. Mexico. Definitely… because they're all quiet…"

Some Anglo pairs may have missed the frequent nonverbal interactions in *MexIndigH* clips, but others saw them and did not seem to consider them relevant, as in the following examples:

> A pair explained that the *MexIndigH* boys "were helping each other more" than the girls from that background because "She was demonstrating how but she wasn't talking about it. [The boys did more helping] 'cause they were talking about it."

> A child commented that the *MexIndigH* girls were "less talkative," and the partner agreed, "They aren't helping each other or telling them what to do." The first child laughingly elaborated, "Yeah. They're just kinda playing around with them and... stealing them [referring to a girl in the clip taking over work on girl's figure]." The second child clarified that "They were showing them" and the first child specified the need to talk for helping: "Yeah, but they weren't exactly like,

> talking," and contrasted the clip with the *MexIndigH* boys' clip, "They're talking. They might be helping each other."

There was only one gender difference in statements corresponding with or contradicting research. Girls from both cultural backgrounds described working together in ways that correspond with previous research more often than boys, $F = 4.53$, $p = .04$. This difference was most notable among Mexican-heritage US participants, $F = 10.33$, $p < .01$.

***Amount of talk and Other communication***. Both Mexican-heritage US and Anglo children's statements discussing the extent of talk corresponded highly with research, in saying that the *MexIndigH* children talked less than the *MCEurAm* children. Contrary to expectation, the Anglo children's statements corresponded at least as much with research as did those of the Mexican-heritage US children, almost significantly more than the Mexican-heritage US children.[6]

Children from both cultural backgrounds also noted that the *MexIndigH* children communicated in ways other than talk (ns), such as "with their eyes and their hands," "looking at each other instead of talking," "body language kinda," "helping each other, like by eyes… and like with their hands… like if they could help them, like, fold," "One person held up the other person's frog and like they pointed to something and then they – and then the other person like nodded and then the person did something with it."

Despite the children's general agreement across cultural backgrounds about the extent of talk and other communication, there seemed to be differences in the ways talk was conceptualized. Three Mexican-heritage US pairs stated that children in the *MCEurAm* clips talked *less*, although these clips contained many more spoken words than the *MexIndigH* clips. Their comments suggested that they may have considered nonverbal communication to be a form of talk and, perhaps, they may have excluded the kind of off-task chat that occurred in the *MCEurAm* clips. For example, one Mexican-heritage US pair stated that the *MCEurAm* children were not communicating and gave the *MexIndigH* children's helping as evidence that they were communicating. Another pair

noted that the children in the *MexIndigH* clips "talk with their hands and they [referring to the chatting in the *MCEurAm* clips] just talked about all kinds of things."

Thus children from the two backgrounds often differed in their ideas about spoken words and nonverbal communication. Whereas some of the Mexican-heritage US children seemed to include nonverbal conversation in their definition of talk, many of the Anglo children seemed to see spoken words as necessary for working together or helping.

***Paying attention.*** The trend for the Mexican-heritage US children's characterizations of paying attention to correspond more often with research, compared to Anglo children's characterizations, did not reach significance. (See Table 2.)

## Cultural Explanations of Differences

Few pairs of either background explained the differences between places despite interview questions geared to elicit these explanations. The pairs that gave explanations generally gave only one or two across the whole session. The explanations given by children of both cultural backgrounds usually focused on the *MexIndigH* clips or contrasted the *MexIndigH* clips with the *MCEurAm* clips. This may suggest that children from both backgrounds see the middle-class European American ways of interacting as the norm.

Mexican-heritage US pairs gave cultural explanations of the differences they saw more often than Anglo pairs (12 vs 9 of the pairs, respectively, $t = 1.86$, $p < .05$). The most common cultural attribution that emerged from the data was related to the Mexican cultural practice of *respeto* (consideration). Seven of the Mexican-heritage US pairs referred to the *MexIndigH* children as showing more *respeto* as a reason for the differences in the clips. When asked the interview question concerning whether respect related to the differences in how much children in the videos talked, five Anglo pairs mentioned that the *MexIndigH* children were respectful.

Some Mexican-heritage US pairs elaborated with connections between *respeto* and taciturnity that focused on not disturbing the activities of others and helping others when possible. One pair said

that talking through the whole video would be disrespectful. Another child explained,

> "People in classes don't have to scream because the teacher might be doing something, or the teacher might be taking a test with this kid… if you're done and somebody's not you have to be quiet because they're still not finished."

One pair characterized the *MCEurAm* children as acting immature and disrespectful, by contrasting them with a *MexIndigH* child who "was honoring and like, not going crazy". Some of the Anglo children also elaborated, noting that the *MexIndigH* children's respectful approach allowed their peers time for quiet concentration, allowed others to focus, and avoided interrupting their work.

Three of the Mexican-heritage US pairs mentioned helping as a way of showing *respeto* and two of these pairs suggested that this helping included not speaking. One group said, "The Mexicans are helping and being really quiet so people don't get really distracted." Another pair explained that Mexican kids learn to work the way they do because "they've seen so many people help each other that they just knew… if somebody needed help that they could help them." The Mexican-heritage children's explanations fit with portrayals of *respeto* as a practice of mutual support and recognizing the individual as a part of a larger whole (López et al., in press; Ramírez Sánchez, 2007; Ruvalcaba, Rogoff, López, Correa-Chávez, & Gutiérrez, 2011; Valdés, 1996).

A few cultural explanations focused on schools, teachers, and parents of one place or the other encouraging children to work together or work harder. One Mexican-heritage US pair said, "In Mexico the teachers show how to work together," and an Anglo pair explained "a lot of schools in California really focus on like, working together. Like you learn that in kindergarten." Three Mexican-heritage US pairs explained that teachers and parents make children work harder in Mexico.

Some of the remaining cultural explanations dealt with issues of poverty or resources (offered by 2 Mexican-heritage US pairs and 2 Anglo pairs). For example, two Mexican-heritage US pairs suggested

that Mexican practices were influenced by economic hardship and the need to appreciate opportunities to learn and work, such as "They're poor. So they take more care in their work."

No explanations were offered to explain why Anglo pairs talked more. This is consistent with the suggestion that children from both backgrounds acknowledged middle-class European American ways of interacting as normative.

## Discussion

Our findings indicate that compared with Anglo children, bilingual Mexican-heritage US children more often identified cultural differences between Mexican and Anglo children's ways of working together and helping in accord with patterns found in previous research. The pattern was similar but not significant in the topic of paying attention to each other. The finding that Mexican-heritage US children commented much more about helping than the other topics may fit with the centrality of helping without being asked (being *acomedido*) in some Mexican communities (López et al., in press; Ramírez Sánchez, 2007).

The pattern of greater correspondence with research by the Mexican-heritage US children was not upheld in the children's statements regarding which groups talked more or communicated in other ways: The Anglo children's statements were at least as likely to correspond with research. However, the children's explanations yielded interesting differences in what counts as talk and the role of talk in working together and helping. We discuss these below after considering the expected findings in working together and helping.

### Awareness of Cultural Patterns of Working Together

The finding that the Mexican-heritage US children discussed working together and helping in ways that corresponded with research more often than the Anglo children may relate to their bicultural experience giving them greater sensitivity to noticing cultural practices. Bicultural experience may allow children and adults to move more fluidly across

cultural contexts, to adapt more readily to distinct cultural practices, and enhance understanding of others' perspectives (Orellana, 2009; Quintana, 2008). Such a "transcultural disposition" (Orellana, 2009) may enhance social-emotional understanding and performance on theory of mind tasks (Hoffman, 2008), as well as reflections on use of different languages and registers across contexts (Zentella, 1997).

Although children who have experience with more than one repertoire of cultural practice may develop an understanding of culture and of which approach to use in which situation (Gutiérrez & Rogoff, 2003; Rogoff, 2003), this experience can be challenging. Indeed, learning the social conventions of schools may require significant cognitive effort for children unfamiliar with them, because they are neither self-evident nor often explained (Buchanan-Barrow, 2005; Smetana, 1993). In the US, the social organization common in schools is often treated as normative, which may create difficulties for children whose home practices differ from what they encounter in school (Delpit, 1995).

Awareness of multiple cultural ways may provide a measure of protection to minority children against feeling alienated or unwelcome in schools where cultural patterns of interaction may differ from those of their homes and where home practices may be deprecated (Hurtado & Gurin, 2004; Yosso, Smith, Ceja, & Solorzano, 2009). Acknowledging and appreciating distinct cultural practices may enable minority children to establish a positive sense of community and a positive group identity (Apfelbaum, 1979).

## Cultural Differences in Concepts of Talk and Nonverbal Communication

The Anglo children talked more in discussing the differences between the clips, themselves exemplifying one of the cultural differences found in prior research: More extensive talk has been noted among European American middle-class populations than among Indigenous-heritage populations of the Americas under some circumstances (Deyhle & Swisher, 1997; Paradise & Rogoff, 2009).

Many of the Anglo children seemed to regard verbal talk as necessary for working together and helping. They struggled with how to characterize the clips showing Mexican Indigenous-heritage children

collaborating nonverbally, and half of the Anglo pairs claimed that helping or working together could not occur without words. This is consistent with interviews that suggest that European American middle-class adults interpret talk as an indicator of learning and engagement (Kim, 2002; Li, 2005). The Anglo children in this study tended to focus on talk as the normative means of interaction. One Anglo child said that the middle-class European American children "were like more outgoing, talking to each other like a normal child."

In contrast, several US Mexican-heritage children seemed to use a more inclusive definition of talk as including nonverbal communication, "talking with their hands and eyes." This finding fits with the idea that emphasis on articulate nonverbal as well as verbal communication is common in some Indigenous and Mexican-heritage communities (Mejía-Arauz et al., 2007a, b; Ruvalcaba et al., 2011).

The findings may also relate to the cultural value of *respeto*, a form of consideration valued in Mexico, in which people pay attention to the direction of the group, use subtle forms of communication, and avoid interrupting others' activities (Ruvalcaba et al., 2011; Valdés, 1996; see also Deyhle & Swisher, 1997). About half of the Mexican-heritage US children characterized extensive talk as lacking in *respeto* or being rude (e.g., "It is rude to talk through the whole video").

In sum, the study indicates that bilingual Mexican-heritage US children's reflections on how other children help and work together correspond more with research identifying cultural patterns of interaction than do those of middle-class European American children. The insights provided by the children's reflections support the idea of distinct cultural patterns of social organization (Rogoff et al., 2003, 2007). The US Mexican-heritage children's reflections are consistent with a pattern of community contribution involving collaboration, helping, and communicating in ways that do not interrupt the activities of others, such as using nonverbal conversation. In contrast, the Anglo children's reflections point to an emphasis on talk as a key aspect of working together and helping others.

The findings suggest that schools and other mainstream institutions could build on bilingual children's possible greater awareness of cultural patterns. In addition, their service to children would benefit

from an awareness of distinct cultural patterns in how children view working together, helping, and the role of talk and nonverbal conversation.

**Acknowledgments**

We are grateful for the thoughtful reflections of the children in this study and for the participation of Valencia and Bay View elementary schools, the Santa Cruz Boys and Girls Club, La Familia Center, and Barrios Unidos. We also appreciate the children whose videoclips were used in the interviews. We thank Andrea Martinez and Juanita Correa for their work in data collection and coding and Maureen Callanan, Kris Gutiérrez, Rebeca Mejía Aráuz, Maricela Correa-Chávez, Brigitte Jordan, Nancy Trinh, Suzanne Gaskins, Kathryn Burleson, Carly Friedman, Debbie Siegel, and Paloma Visscher for their comments on the study and the manuscript. The research was funded by the National Science Foundation Center for Informal Learning and Schools (NSF # ESI-0119787/SFE), a grant from the National Science Foundation (# 0837898; any opinions, findings, and conclusions are those of the authors and do not necessarily reflect the views of the NSF), a training grant from the National Institutes of Health (#T32HD046423-10), and an endowed chair from the University of California at Santa Cruz.

# Notes

[1] Children from both backgrounds often referred to the clips as “Mexican” and “American” or “from the US.” A few Anglo children referred to the clips as “Spanish” and “English.” Three Mexican-heritage US pairs used filial terms, such as “us Mexicans”, “our people,” or “we do it like this.”

[2] The few statements that occurred spontaneously, prior to questioning, fit the same pattern as statements in response to the questions.

[3] The patterns were similar within and between backgrounds when complementary topics (*MexIndigH* work together vs. *MCEurAm* work alone, helping vs. not helping, paying attention vs. not paying attention, and talking more vs. talking less) were examined separately. Therefore, we do not distinguish these complementary ways of describing differences.

[4] We also examined negative value judgments, which used disparaging words, tone, or expression. The few pairs who made these averaged about 1 per session (ns). Eight were about the *MexIndigH* children. Four Anglo pairs suggested that the *MexIndigH* children were immature or inexperienced and two characterized them as less smart or less able than the *MCEurAm* children. The two negative value judgments made by Mexican-heritage US children regarding the *MexIndigH* clips characterized them as unsophisticated and dirty or less smart because their teachers help them less.

Two pairs from each background made negative value judgments about *MCEurAm* clips; they suggested that the children in the *MCEurAm* clips were messing around or acting immature and disrespectful. In addition, one of these pairs from each cultural background suggested that the children in the *MCEurAm* clips were less smart or less able.

[5] Eight Mexican-heritage US pairs and 5 Anglo pairs did not mention one or more of the 5 topics, ns. The most commonly omitted topic was that of other communication.
[6] In addition to the planned comparison, a regular t-test also showed no significant difference between the backgrounds in the percent of topic statements about talk that corresponded with research.

## References

Apfelbaum, E. (1979). Relations of domination and movements for liberation. In W. G. Austin, S. Worchel (Eds.), *The social psychology of intergroup relations*. (pp. 188-204). Monterey, CA: Brooks/Cole.

Bialystok, E., Craik, F.I.M., Green, D.W., & Gollan, T.H. (2009). Bilingual minds. *Psychological Science in the Public Interest, 10*, 89-129.

Buchanan-Barrow, E. (2005). Children's understanding of the school. In Barrett, M., & Buchanan-Barrow, E. (Eds.), *Children's understanding of society.* (pp. 349-369). NY: Psychology Press.

Brown, B. A. (2006). "It isn't no slang that can be said about this stuff": Language, identity, and appropriating science discourse. *Journal of Research in Science Teaching, 43*(1), 96-126.

Candela, A. (2005). Students' participation as co-authoring of school institutional practices. *Culture & Psychology, 11*(3), 321–337.

Cazden, C., & John, V. (1971). Learning in American Indian children. In M. L. Wax, S. Diamond, F. O. Gearing (Eds.), *Anthropological perspectives on education* (pp. 252-272). NY: Basic.

Chavajay, P., & Rogoff, B. (2002). Schooling and traditional collaborative social organization of problem solving by Mayan mothers and children. *Developmental Psychology, 38*(1), 55-66.

Chamoux, M. N. (1992). Aprendiendo de otro modo. In M.-N. Chamoux (Ed.), *Trabajo, técnicas y aprendizaje en el México indígena* (pp. 73-93). Mexico City: Centro de Investigaciones y Estudios Superiores en Antropología Social, Ediciones de la Casa Chata.

Correa-Chávez, M., Rogoff, B., & Mejía Arauz, R. (2005). Cultural patterns in attending to two events at once. *Child Development, 76*, 664-678.

Correa-Chávez, M., Roberts, A. L. D., & Martínez Pérez, M. (2011). Cultural patterns in children's learning through keen observation and participation in their communities. In: J. Benson (Ed.). *Advances in Child Behavior and Development, Vol 40*, (pp. 209-241).Waltham, Massachusetts: Academic Press.

de Haan, M. (1999). *Learning as cultural practice: How children learn in a Mexican Mazahua community*. Amsterdam: Thela Thesis.

de León, L. (2000). The emergent participant: Interactive patterns in the socialization of Tzotzil (Mayan) infants. *Journal of Linguistic Anthropology*, 8, 131-161.

Delpit, L. (1995). *Other people's children.* NY: New Press.

Deyhle, D., & Swisher, K. (1997). Research in American Indian and Alaska Native education. In M. W. Apple (Ed.), *Review of Research in Education, 22*, 113-194.

Erickson, F. (1987). Transformation and school success. *Anthropology and Education Quarterly, 18*, 335-356.

Gaskins, S. (1999). Children's daily lives in a Mayan village. In A. Goncü (Ed.), *Children's engagement in the world*. (pp. 25-60). New York: Cambridge.

Gutiérrez, K., & Rogoff, B. (2003). Cultural ways of learning: Individual traits or repertoires of practice. *Educational Researcher, 32*(5), 19-25.

Heath, S. B. (1983). *Ways with words*. Cambridge: Cambridge University Press.

Hoffman, E. (2008). *Assessing the relationship between childhood bilingualism and social-emotional understanding*. Dissertation Abstracts International: Section B: The Sciences and Engineering, *68* (10-B).

Hurtado, A. & Gurin, P. (2004). *Chicana/o identity in a changing U.S. society, Quién soy? Quiénes somos?* Tucson: University of Arizona Press.

Keller, H., Lamm, B., Abels, M., Yovsi, R., Borke, J., Jensen, H., Papaligoura, Z., Holub, C., Lo, W., Tomiyama, A. J., Su, Y., Wang, Y., & Chaudhary, N. (2006). Cultural models, socialization goals, and parental ethnotheories. *Journal of Cross-Cultural Psychology, 37*(2), 155-172.

Kim, H. S. (2002). We talk, therefore we think? A cultural analysis of

the effect of talking on thinking. *Journal of Personality and Social Psychology, 83*, 828-842.

Laosa, L. M. (1980). Maternal teaching strategies in Chicano and Anglo-American families. *Child Development, 51,* 759-765.

Li, J. (2005). Mind or virtue: Western and Chinese beliefs about learning. *Current Directions in Psychological Science, 14*, 190-194.

Lipka, J. (1994). Schools failing minority teachers. *Educational Foundations, 8*, 57-80.

López, A., Correa-Chávez, M., Rogoff, B., & Gutiérrez, K. (2010). Attention to instruction directed to another by U.S. Mexican-heritage children of varying cultural backgrounds. *Developmental Psychology, 46*(3), 593-601.

López, A., Najafi, B., Rogoff, B., & Mejía-Arauz, R. (in press). Collaboration and helping as cultural practices. In J. Valsiner (Ed.), *Oxford handbook of culture and psychology.* NY: Oxford University Press

Lorente, D. F. (2006). Infancia Nahua y transmision de la cosmovisión. *Boletín de Antropología, 20*(37), 152-168.

Marks, A. K., Szalacha, L. A., Lamarre, M., Boyd, M. J., & García Coll, C. (2007). Emerging ethnic identity and interethnic group social preferences in middle childhood. *International Journal of Behavioral Development, 31*, 501-513.

McNaughton, S. (2005). Classroom discourse and culture. *Culture and Psychology, 11*(3), 377-384.

Mejía Arauz, R., Roberts, A. L. D., & Rogoff, B. (2007a, July). *Cultural variation in children's organization of participation through nonverbal conversation*. XXXI International Congress of Psychology, Mexico City.

Mejía Arauz, R., Rogoff, B., Najafi, B., & Dexter, A. L. (2007b). Cultural variation in children's participation in a shared activity. *Child Development, 78*(3), 1001-1014.

Mejía Arauz, R., Rogoff, B., & Paradise, R. (2005). Cultural variation in children's observation during a demonstration. *International Journal of Behavioral Development, 29*, 282-291.

Orellana, M. F. (2009). *Translating childhoods: Immigrant youth, language, and culture*. NJ: Rutgers University Press.

Paradise, R. (1994). Interactional style and nonverbal meaning: Mazahua children learning how to be separate-but-together. *Anthropology & Education Quarterly, 25*(2), 156-172.

Paradise, R. (1996). Passivity or tacit collaboration: Mazahua interaction in cultural context. *Learning and Instruction, 6*(4), 379-389.

Passel, J. (2004). *Mexican immigration to the US*. Retrieved from Migration Information Source website: http://www.migrationinformation.org/usfocus/display.cfm?ID=208

Philips, S. U. (1972). Participant structures and communicative competence. In C. Cazden, V. John, & D. Hymes, (Eds.). *Functions of language in the classroom*. (pp. 245-253). Long Grove, Illinois: Waveland.

Quintana, S. M. (2008). Racial perspective taking ability. In S. M. Quintana & C. McKown (Eds.), *Handbook of race, racism, and the developing child*. Hobokin, NJ: Wiley.

Ramírez Sánchez, M. A. (2007). "Helping at home": The concept of childhood and work among the Nahuas of Tlaxcala, Mexico. In B. Hungerland, M. Liebel, B. Milne & A. Wihstutz (Eds.), *Working to become*. (pp. 87-98). Philadelphia: Jessica Kingsley Publishers.

Rogoff, B. (2003). *The cultural nature of human development*. NY: Oxford University Press.

Rogoff, B., Mistry, J., Göncü, A., & Mosier, C. (1993). Guided participation in cultural activity by toddlers and caregivers. *Monographs for the Society for Research in Child Development, 58*(8), 1-174.

Rogoff, B., Paradise, R., Mejia Arauz, R., Correa-Chávez, M., & Angelillo, C. (2003). Firsthand learning through intent participation. *Annual Review of Psychology, 54*, 175-203.

Rogoff, B., Moore, L., Najafi, B., Dexter, A., Correa-Chávez, M., & Solís, J. (2007). Children's development of cultural repertoires through participation in everyday routines and practices. In J. Grusec & P.D. Hastings (Eds.), *Handbook of socialization*. (pp. 490-515). NY: Guilford.

Rosnow, R., & Rosenthal, R. L. (1996). Contrasts and interactions

redux. *Psychological Science, 7*(4), 253-257.
Ruvalcaba, O., Rogoff, B., López, A., Correa-Chávez, M., & Gutiérrez, K. (2011). *Nonverbal respeto in requests for help by Mexican heritage and European-heritage children*.Manuscript submitted for publication.
Sharan, Y., & Sharan, S. (1992). *Expanding cooperative learning through group investigation*. NY: Teachers College Press.
Smetana, J. G. (1993). Understanding of social rules. In M. Bennett (Ed.), *The development of social cognition*. (pp. 111-141). NY: Guilford.
Tapia Uribe, F. M., LeVine, R. A., & LeVine, S. E. (1993). Maternal education and maternal behavior in Mexico. *International Journal of Behavioral Development, 16*(3), 395-408.
Valdés, G. (1996). *Con respeto*. Berkeley: University of California Press.
Yosso, T. J., Smith, W. A., Ceja, M., & Solórzano, D. G. (2009). Critical race theory, racial microagressions, and campus racial climate for Latina/o undergraduates. *Harvard Educational Review, 79*, 659-690.
Zentella, A. C. (1997). *Growing up bilingual*. NY: Blackwell.

**Amy L. D. Roberts** is Assistant Professor in the Department of Developmental Psychology at Roosevelt University, United States of America.

**Barbara Rogoff** is a UCSC Foundation Distinguished Professor of Psychology in the Department of Psychology at the University of California, Santa Cruz, United States of America.

**Contact Address:** Direct correspondence to Amy Roberts at Roosevelt University, Rm 360-N, 1400 N. Roosevelt Blvd, Schaumburg, IL 60173 or at aroberts06@roosevelt.edu

IJEP
International Journal of Educational Psychology

Hipatia Press
www.hipatiapress.com

Instructions for authors, subscriptions and further details:

http://ijep.hipatiapress.com

# Vygotsky's Analysis of Children's Meaning Making Processes

Holbrook Mahn [1]

1) Department of Language, Literacy & Sociocultural Studies, University of New Mexico, United States of America

Date of publication: June 24th, 2012

To cite this article: Mahn, H. (2012). Vygotsky's Analysis of Children's Meaning Making Processes. *International Journal of Educational Psychology, 1*(2), 100-126. doi:10.4471/ijep.2012.07

To link this article: http://dx.doi.org/10.4471/ijep.2012.07

*IJEP – International Journal of Educational Psychology Vol. 1 No. 2. June 2012 pp. 100-126*

# Vygotsky's Analysis of Children's Meaning Making Processes

Holbrook Mahn
*University of New Mexico*

**Abstract**

Vygotsky's work is extensive and covers many aspects of the development of children's meaning-making processes in social and cultural contexts. However, his main focus is on the examination of the unification of speaking and thinking processes. His investigation centers on the analysis of the entity created by this unification – an internal speaking/thinking system with meaning at its center. Despite the fact that this speaking/thinking system is at the center of Vygotsky's work, it remains little explored. This article relies on Vygotsky's writings, particularly Thinking and Speech, to describe his examination of the speaking/thinking system. To analyze it he derives the unit – znachenie slova – "meaning through language." In Thinking and Speech Vygotsky describes the origins and development of znachenie slova as a unit of the speaking/thinking system. He also details his genetic, functional, and structural analysis of the processes through which children internalize meaning in social interaction and organize it in an internal, psychological system. The foundation of this system is the child's ability to generalize by using symbolic representation in meaningful communication. Vygotsky's analysis of the structure of generalization in the speaking/thinking system is central to his examination of how children make meaning of their sociocultural worlds.

**Keywords:** meaning making, psychological systems, Vygotsky, methodology, unit analysis


ISSN 2014-3591
DOI: 10.4471/ijep.2012.07

Hipatia Press
www.hipatiapress.com

The ways in which children make meaning of their physical, social, and cultural worlds and of their own cognitive and affective processes have been studied extensively by educators and psychologists and other social scientists, but because the concept *meaning* has a variety of uses reflecting different disciplines, its meaning is often elusive. Therefore, a question is raised for educational psychologists, "What is the nature of the concept of meaning used in studies on children's meaning making in classrooms?" The search for an answer to this question comprises a substantial portion of the life work of the Russian educational psychologist, Lev Vygotsky (1896-1934).

An important aspect of Vygotsky's analysis of children's meaning-making processes is his examination of the origins and development of the human species' ability to make and communicate meaning. He compares it to the processes used higher primates to make meaning of their worlds and highlights a fundamental difference – the sociocultural world into which the child is born, including cultural practices and the communicative use of language. Vygotsky's examination of the processes the individual child develops to create meaning through the acquisition and use of language addresses the central question posed above on the nature of children's meaning-making processes.

Vygotsky (1987) makes it clear in his main work *Thinking and Speech* that the central focus of his research is the examination of the relationship between the processes used in thinking and the processes involved in the reception and production of spoken and written speech and their unification in *rechnoi myshlenie*, (literally "speech thinking"). The fact Vygotsky uses this concept to represent a psychological process/formation/system is lost when translating it "verbal thinking." In spite of its centrality, Vygotsky's analysis of the speaking/thinking system at the center of the creation of meaning has not received as much attention as his analyses of other concepts. This article's purpose is to describe the system created through the unification of speaking and thinking processes through a precise and explicit examination of Vygoytv Vygotsky's writings on children's meaning-making processes.

Unlike other psychologists of his time, who examined mental

functions in isolation, Vygotsky analyzed the human psyche and consciousness as interconnected systems and examined mental functions as processes interrelated in systems. Internal systems of the human psyche are based on the unity of the brain and mind and are activated and shaped through sensuous activity and communicative interactions in specific social situations of development. Vygotsky's examination of the origins and development of the speaking and thinking processes and their unification into a system with meaning at its core rests on the concept of the human psyche as a system of systems. "The structure of meaning is determined by the systemic structure of consciousness" (1997a, p. 137); therefore, Vygotsky examines "the systemic relationships and connections between the child's separate mental functions in development" (1987, p. 323). Vygotsky views the speaking/thinking system as a "unified psychological formation" (1987, p. 44), as a "complex mental whole" (p. 45). The internal, dynamic relationship between thinking and speaking processes represents a "unique and changing set of relations," the development of which should be viewed as "a *psychological system*" (1997a, p. 92).

In his study of the human psyche and its systems, Vygotsky relies heavily on Marx and Engels to develop a methodological approach that analyzes phenomena as processes, as dynamic systems in which unification with other processes and systems is central to development. Vygotsky's approach investigates a phenomenon's origins, examines the forces behind its development, and reveals interconnections and interactions with its environment.

## Vygotsky's Methodological Approach

Early in his career, Vygotsky argues, in *The Historical Meaning of the Crisis in Psychology* (1997a), that developing a methodological approach appropriate to the investigation of the human psyche is the main challenge facing psychology. He articulates a goal of developing a methodological approach to the study of consciousness that addresses the problems inherent in the two dominant approaches to psychology of his time: behaviorist approaches that attempt to legitimatize psychology by adopting methodological approaches wholesale from the hard

sciences, and metaphysical approaches that deal exclusively with subjective reactions and therefore do not even attempt to explain the origins and development of human consciousness. Vygotsky describes three key aspects to his approach: 1) the use of Marx and Engels' dialectical approach; 2) analysis of complex systems by examining interconnections with other systems; and 3) analysis using units. He analyzes mental functions as processes in systems examining their origins, development, and interfunctional relationships with the goal of revealing "the unified and integral nature of the process being studied" (1987, p. 46). To establish his methodology for this analysis, Vygotsky turns to the works of Marx and Engels, particularly *German Ideology* (1976) and *Theses on Feuerbach* (1969), in which they describe their methodological approach (Mahn, 2010).

Vygotsky's approach incorporates the key tenet of dialectical logic that nothing is constant but change and that all phenomena are processes in motion. "To study something historically means to study it in motion. Precisely this is the basic requirement of the dialectical method" (1997b, p. 43). To study the relationship between think and speaking, Vygotsky examines their unique origins and initial independent paths of development.

> The internal relationships between thought and word with which we are concerned are not primal. They are not something given from the outset as a precondition for further development. On the contrary, these relationships emerge and are formed only with the historical development of human consciousness. They are not the precondition of man's formation but its product (1987, p. 243).

Understanding the development of the thinking and speaking processes is key to understanding the nature of their unification. Vygotsky analyzes the dialectical relationship of thinking and speaking processes in a "pure, independent, uncovered form" (1997b, p. 53), focusing times of *qualitative transformation* in the relationships between mental processes, that lead to the creation of the new mental formations, bringing about new systems.

## Analysis of Units

In *Thinking and Speech*, Vygotsky reports on experimental studies he and his colleagues conducted to analyze the *unification* of the thinking and speaking processes and of "the unified psychological formation" (1987, p. 44) – the speaking/thinking system of meaning – that results. After emphasizing the importance of maintaining the integrity of the system as a whole when analyzing the unification of thinking and speaking processes, Vygotsky poses the question: "What then is a unit that possesses the characteristics inherent to the integral phenomenon of *rechnoi myshlenie* [the speaking/thinking system] and that cannot be further decomposed? In our view, such a unit can be found in *znachenie slova,* the inner aspect of the word, its meaning" (p. 47). In partitioning the whole into a unit, "the term 'unit' designates a product of analysis that possesses *all the basic characteristics of the whole.* The unit is a vital and irreducible part of the whole" (p. 46) that is derived through an analysis that examines the "concrete aspects and characteristics" (p. 244) of the whole.

During a conference with his closest collaborators in 1933 near the end of his life, Vygotsky clarified how he was using *znachenie slova*: "Meaning is not the sum of all of the psychological operations which stand behind the word. Meaning is something more specific – it is the internal structure of the sign operation" (1997a, p.133). However, Vygotsky's analysis of *znachenie slova* as the internal structure of the speaking/thinking system is lost when it is translated into English as "word meaning." The Russian *znachenie* translates to "meaning" and *slova* to "word," but *slova* represents language as a whole, as reflected in the sentence, "In the beginning was the word." More accurate, expanded renditions of *znachenie slova* are "meaning through language use" or "meaning through the use of the sign operation." The key is that *znachenie slova* reflects the essence of the internal psychical system created by the unification of speaking/thinking processes. Meaning communicated through language is a central aspect of *znachenie slova*, but focusing on the external meanings of words and processes of semiotic mediation without analyzing the origins and development of their interrelationship with thinking processes overlooks what Vygotsky

feels is essential – that *znachenie slova* maintain the essence of the internal psychical system of which it is a unit.

## Analysis of *Znachenie Slova*

In *Thinking and Speech* Vygotsky presents his analysis of *znachenie slova* revealing the relationship between thinking and speaking and disclosing "the internal essence that lies behind the external appearance of the process, its nature, its genesis" (1997b, p. 70). He analyzes *znachenie slova* from three perspectives: *genetic*, looking at its origins; *structural*, examining the development of psychological functions and processes and their interconnections; and *functional*, investigating psychological activity and motivating factors in the speaking/thinking system. Vygotsky looks at the development of meaning as a process, one that is shaped by its systemic relationship with other psychical functions, processes, structures, and systems. As a preliminary step to the study of the unification of thinking and speaking processes and the discovery of its qualitative and quantitative characteristics and categories and concepts, Vygotsky argues that a first step is "an analysis of available information on its phylogenesis and ontogenesis" (1987, p. 40), which he does in chapters 2 and 3 in *Thinking and Speech* critically analyzing theories of Piaget and Stern on the relationship between thinking and speaking. Then in chapter 4 he examines the "theoretical issues concerning the genetic roots of thinking and speech" (p. 40) – looking at the origins of symbolic representation in early humans and comparing and contrasting human thinking processes and language use to higher primates' thinking and communicative abilities. These chapters provide the foundation for Vygotsky's analysis of the unit *znachenie slova* in the last three chapters.

In summarizing his work at the end of *Thinking and Speech*, Vygotsky states: "The discovery that *znachenie slova* changes and develops is our new and fundamental contribution to the theory of thinking and speech. It is our major discovery" (1987, p. 245). The development of meaning is a *process* that has its foundation in the infant's physical brain and in those elementary thinking processes with which humans are born and which develop in infancy – mechanical

memory, involuntary attention, perception, etc. These elementary mental functions are shaped by the sociocultural situation into which children are born, as well as through their interactions with others and their environment. The development of perception, attention, and memory leads to communication between the child and caretakers, with the latter ascribing communicative intent to the infant's gestures and sounds. This early social interaction provides a foundation for the development of children's communicative intentionality and symbolic representation – key elements in the acquisition of language. As children develop, a qualitative transformation in social interaction takes place as communication of meaning is enhanced by the development of the ability to generalize through "the creation and the use of signs" (1997b, p. 55).

> It turns out that just as social interaction is impossible without signs, it is also impossible without meaning. To communicate an experience of some other content of consciousness to another person, it must be related to a class or group of phenomena. As we have pointed out, this requires generalization. *Social interaction presupposes generalization and the development of verbal meaning;* generalization becomes possible only with the development of social interaction (1987, p. 48).

Two basic functions of speech – revealing reality in a generalized way and communicating meaning in social interaction – are important components of Vygotsky's speaking/thinking system. "It may be appropriate to view *znachenie slova* not only as a *unity of thinking and speech,* but *as a unity of generalization and social interaction, a unity of thinking and communication*" (1987, p. 49, italics in original). Vygotsky uses *generalization* to refer to the mental act of abstracting from a concrete object to develop a concept of the object in its manifold manifestations and not to *general* versus *local* meaning.

Understanding the potential for confusion about the significance of *meaning*, and having established "the changeable nature of meaning", Vygotsky says, "we must begin by defining it correctly. The nature of meaning is revealed in generalization. The basic and central feature of any word is generalization. All words generalize" (1987, p. 249).

> Meaning is a necessary, constituting feature of the word itself. It is the word viewed from the inside. This justifies the view that *znachenie slova* is a phenomena of speech. In psychological terms, however, *znachenie slova* is nothing other than a generalization, that is a concept. In essence generalization and *znachenie slova* are synonyms. Any generalization – any formation of a concept – is unquestionably a specific and true act of thought. Thus, *znachenie slova* is also a phenomenon of thinking (1987, p. 244).

The structure of generalization that is produced through ongoing development of the ability to generalize provides the foundation for the internal speaking/thinking system and is revealed in Vygotsky's analysis of *znachenie slova.* Through the development of this system, children acquire the ability to generalize and use symbolic representation, underscoring Vygotsky's main discovery that the psychological nature of meaning changes.

At the conclusion of *Thinking and Speech* Vygotsky writes that he has not fully analyzed the speaking/thinking system but has only revealed its complexity, which I have tried to capture in the figure below. In the discussion following the diagram, I use Vygotsky's writings to describe the significance of the numbered items within the diagram as well as their relationships with other aspects in the diagram. (The numbers of each section below refer to the numbers in the diagram.) The concept being described in each section is written in capital letters for clarification. (Referring back to this diagram at the beginning of each numbered section may help to see the particular interrelationship being described.)

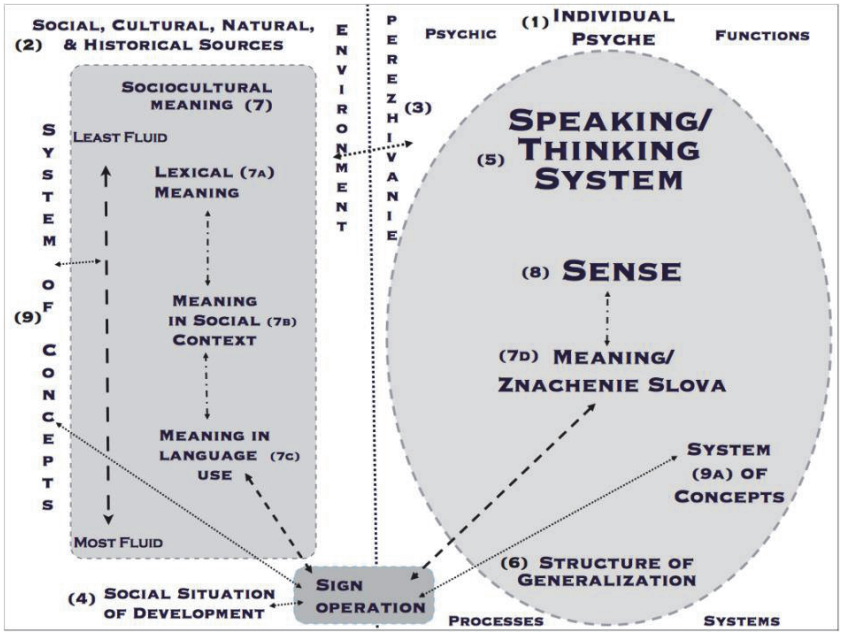


*Figure 1.* Vygotsky's Speaking/Thinking System with Meaning at its Center

(1). The INDIVIDUAL PSYCHE is demarked by the vertical line near the middle of the figure and includes the psychological functions, processes, structures, and systems that determine its course of development. The psyche as the unification of the brain and mind, involves interrelationships of numerous systems – historical, social, cultural, biological, natural, emotional, chemical, electrical, physical, activity, mental… among others. Vygotsky recognizes the importance of the interrelationships of all of these systems, but his focus is on how these interrelationships lead to and enhance the development of the human psyche. In critiquing an approach that isolates functions for analysis, Vygotsky writes:

> Because [that approach] causes the researcher to ignore the unified and integral nature of the process being studied, this form of analysis leads to profound delusion. The internal relationships of the unified whole are replaced with external mechanical relationships between two heterogeneous processes. (1987, p. 46). The result has been that the relationships between thought and word have been understood as constant, eternal relationships between things, not as internal, dynamic, and mobile relationships between processes (1987, p. 283).

These processes are essential in the development of the systems that constitute consciousness. In his analysis of the origins and development of these systems, for both the species and the individual, Vygotsky incorporates an examination of the roles played by social, cultural, historical, and natural forces. His central focus is on the interconnections among all of these processes and how they influence the development of humanity's and of the individual's ability to construct and communicate meaning through language.

(2). The individual psyche develops through interaction with SOCIAL CULTURAL NATURAL HISTORICAL SOURCEs. For the SOCIAL aspect Vygotsky relies heavily on Marx and Engels' analysis of the role of labor in the development of human social formations and of how humans changing nature through labor changed humanity. Vygotsky focuses on "human sensuous activity" (Marx, 1933, p. 471) and in particular the way in which humans develop higher psychical processes. To do so he takes a HISTORICAL approach looking at the genesis of those processes for the species and for the individual. The historical development of humanity and its social forms of organization are key forces in the development of the human psyche.

Vygotsky's genetic analysis of the species looks at the time when "humanity…crossed the boundaries of animal existence" (1997b, p. 44) and examines two different processes in that crossing:

> On the one hand, it is the process of biological evolution of animal species leading to the appearance of the species *Homo sapiens;* on the other, it is the process of historical development by means of which the primordial, primitive [hu]man became cultured. (1997b, p. 15)

Vygotsky argues that NATURAL and CULTURAL forces create "autonomous and independent lines of development" (p. 15) for the species and for the individual. For humanity, "Culture creates special forms of behavior, it modifies the activity of mental functions, it constructs new superstructures in the developing system of human behavior" (p. 18); for the child, natural and cultural processes "are merged in ontogenesis and actually form a single, although complex process" (p. 15), which has its origins at birth. Unlike for the human species, which had reached an almost complete biological form by the time higher psychical processes developed, growth and cultural development occur at the same time for the child.

> Cultural development of the child is still characterized primarily by the fact that it occurs under conditions of dynamic change in organic type. It is superimposed on processes of growth, maturation, and organic development of the child and forms a single whole with these. Only by abstraction can we separate some processes from others. (p. 19)

Vygotsky uses abstraction to examine two interrelated but distinct processes that play a central role in the development of the human psyche:

> First, the processes of mastering external materials of cultural development and thinking: language, writing, arithmetic, drawing; second, the processes of development of special higher mental

> functions not delimited and not determined with any degree of precision and in traditional psychology termed voluntary attention, logical memory, formation of concepts, etc. (p. 14)

These processes are intertwined from the beginning, but it is only by abstracting one from the other that we can begin to understand their essence.

In his analysis of the cultural development of the child, Vygotsky focuses primarily on the role that language plays in the development the speaking/thinking system in phylo- and ontogenesis. Natural and cultural forces are central in the development of the human psyche. Vygotsky appreciates the tremendous force that culture has on an individual, but his focus is not primarily on cultural practices. Instead, it is on the *cultural development* of the individual, especially the acquisition of the ability to communicate through language. To study the relationships between individuals and their social, cultural, natural, and historical sources of development Vygotsky uses the concept of *perezhivanie.*

(3). *PEREZHIVANIE* describes individuals' interactions with and experiences in the environment – their sociocultural worlds. Vygotsky conceives of the environment broadly to include the whole "ensemble of social relations," a phrase Marx uses to describe the essence of humanity in his *Theses on Feuerbach* (1933, p. 473). "The essential factors, which explain the influence of environment on the psychological development of children and on the development of their conscious personalities, are made up of their *perezhivanie"* (Vygotsky, 1994, p. 339). This term refers to the way people perceive, emotionally experience, appropriate, internalize, and understand interactions in their social situations of development. "*Perezhivanie* is a unity where, on the one hand, in an indivisible state, the environment is represented, i.e.that which is being experienced…and on the other hand, what is represented is how I, myself, am experiencing this, i.e., all the personal characteristics and all the environmental characteristics are represented in *perezhivanie*" (Vygotsky, 1994, p. 342). There is no adequate translation in English of the Russian term *perezhivanie*, and single or two-word translations do not do justice to the concept. The

translators of Vygotsky's article (1994), "The Problem of the Environment," in which he explains *perezhivanie*, write "the Russian term [*perezhivanie*] serves to express the idea that one and the same objective situation may be interpreted, perceived, experienced or lived through by different children in different ways" (p. 354). Vygotsky points out that the way in which an experience is perceived and made sense of actually affects the environment, not physically, but perceptually. *Perezhivanie* describes the way that individuals participate in and make meaning of "human sensuous activity." Throughout the discussion of the development of the speaking/thinking system, it is important to keep *perezhivanie* in mind, because a criticism of Vygotsky's work is that it focuses too narrowly on internal processes. However, in his analysis of the development of the speaking/thinking system, Vygotsky continually emphasizes the role that social interaction plays in its construction.

(4). SOCIAL SITUATION OF DEVELOPMENT describes the relationships of individuals to their environments and is key to the "unity of the social and the personal" (1998, p. 190). This unity expresses "a completely original, exclusive, single, and unique relation, specific to the given age, between the child and reality, mainly the social reality that surrounds him. We call this relation the *social situation of development* at the given age" (p. 198). It is important to note that Vygotsky conceives of the social situation of development as a *relation*, not a context.

> The child is a part of the social situation, and the relation of the child to the environment and the environment to the child occurs through the experience and activity of the child himself; the forces of the environment acquire a controlling significance because the child experiences them. (p. 294)

The stage that children have achieved in their development is a key factor in determining the nature of interactions in their social situations of development. The concept of *perezhivanie*, experience in a social situation of development, is key to understanding the role social

processes play in the development of an individual's speaking/thinking system.

(5). The SPEAKING/THINKING SYSTEM is represented by the largest oval, reflecting a more developed system. Because this system develops, it would occupy far less space graphically in its initial stages. It is important to recognize that Vygotsky is looking at the unity of thinking and speaking processes by examining meaning/*znachenie slova* at the center of the internal speaking/thinking system. Using the foundation described in the four sections above, Vygotsky analyzes the structure that is created through the development of one's ability to generalize.

(6). The STRUCTURE OF GENERALIZATION co-develops with the speaking/thinking system and provides a framework for it. The ability to generalize develops as children acquire language and begin to develop varies kind of concepts, representing different modes of thinking. Both the meaning created in the speaking/thinking system and the structure of generalization change as children acquire a new and expanded understanding of different concepts.

> The basic finding of our research is that relationships of generality between concepts are closely associated with the structure of generalization (i.e., they are closely associated with the stages of concept development that we studied in our experimental research). *Each structure of generalization (i.e., syncretic, complexes, preconcepts, and concepts) corresponds with a specific system of generality and specific types of relationships of generality between general and specific concepts* (p. 225, italics in original). …Thus, in concept development, the movement from the general to the specific or from the specific to the general is different for each stage in the development of meaning depending on the structure of generalization dominant at that stage. (p. 226)

In chapter 5 of *Thinking and Speech* Vygotsky examines the origins of this structure – the initial unification of the thinking and speaking processes – through his analysis of *znachenie slova*. The foundation

for the structure of generalization includes the generalization involved in a pointing gesture. The use of a gesture as symbolic representation lays the foundation for the unification of thinking and speaking in a system. The speaking/thinking system is created when children, in interaction with adults, apply language to amalgamated visual images. In this act of generalization, children bring together "a series of elements that are externally connected in the impression they have had on a child but not unified internally among themselves" (1987, p. 134) into what Vygotsky calls a *syncretic heap* or group. An example is children associating the word "doggie" with their sensual and emotional experiences with their pet and then grouping other objects or events that evoke the same subjective impressions under the word "doggie".

The next step in the development of the structure of generalization occurs when the "representatives of these [syncretic] groups are isolated and once again syncretically united" (p. 135) – a generalization of a generalization. To trace the development of the structure of generalization, Vygotsky describes how different modes of thinking create "the formation of connections, the establishment of relationships among different concrete impressions, the unification and generalization of separate objects, and the ordering and the systematization of the whole of the child's experience" (p. 135). He illustrates the unification of speaking and thinking processes by showing how the use of a word facilitates the development of voluntary attention, partitioning, comparison, analysis, abstraction, and synthesis. The word *tail* will help the child focus attention, isolate, abstract, generalize and synthesize features. This kind of unification of speaking and thinking processes is critical to the entire process of the development of meaning.

As the syncretic form of thinking, the "connection-less, connectedness" (p. 134) of visual images develops, a qualitative transformation takes place and the next form of thinking – *thinking in complexes* – emerges and brings about fundamental changes in the structure of generalization. "The complex-collection is a generalization of things based on their co-participation in a single practical operation, a generalization of things based on their functional collaboration" (p.139). The child includes objects in a complex based on empirical connections.

Vygotsky (1987) gives an example of a chained-complex as a child uses a word for a duck in a pond and then uses the same word for any kind of liquid, for a coin with an eagle on it, and for anything round. In the development of thinking in complexes, children's *forms* of thinking move through five different phases, always in a dialectical relationship with the changing *content* of thinking, which is key to understanding Vygotsky's claim that *znachenie slova* develops.

The development of the *form* of thinking facilitates the development of the *content* of thinking – meaning created through the unification of thinking and speaking processes. The content of thinking reflects increased capacity with language, facilitating the ability of children to "use words or other signs as means of actively directing attention, partitioning and isolating attributes abstracting these attributes and synthesizing them" (1987, p. 130). This ability to use abstract thinking leads to "the isolation of the meaning from sound, the isolation of word from thing, and the isolation of thought from word [which] are all necessary stages in the history of the development of concepts" (1987, p. 284). At times in this process there are qualitative transformations such as those between syncretic thinking and thinking in complexes and those between thinking in complexes and thinking in concepts.

The *pseudoconcept* is key to the transformation from thinking in complexes to thinking in concepts. The child and the adult both focus on an object designated by a word, and in that shared contact they are able to communicate; however, they use different forms of thinking to arrive at the point where they are using the same word for an object. The "child thinks the same content differently, in another mode, and through different intellectual operations" (1987, p. 152). The child and the adult have different modes of thought as the basis for their speaking/thinking systems.

> The child and adult understand each other with the pronunciation of the word "dog" because they relate the word to the same object, because they have the same concrete content in mind. However, one thinks of the concrete complex "dog" [the pseudoconcept] and the other of the abstract concept "dog". (p. 155)

Adults also use pseudoconcepts as they go through the process of transforming everyday concepts into scientific concepts – ones within systems. Drawing on mathematics, Vygotsky gives an example of the transition from the mode of thinking in complexes to the mode of thinking in concepts.

> The transition from preconcepts (e.g., the school child's arithmetic concept) to true concepts (e.g., the adolescent's algebraic concept) occurs through the generalization of previously generalized objects. The preconcept is an abstraction of the number from the object and, based on this, a generalization of the object's numerical characteristics. The concept is an abstraction from the number and, based on this a generalization of the relationships between numbers (1987, p. 230).

Critical of the theories of his day, Vygotsky writes, "all have overlooked the generalization that is inherent in the word, this unique mode of reflecting reality in consciousness" (1987, p. 249). Consequently, they miss that "Each structure of generalization has a characteristic degree of unity, a characteristic degree of abstractness or concreteness, and characteristic thought operations associated with a given level of development of *znachenie slova*" (1987, p. 225).

Before describing the final mode of thinking in the structure of generalization – thinking in concepts – I look at the different ways in which Vygotsky uses meaning and then relate them to his use of the concept of *sense* (*smysl*).

(7). The concept of *meaning* is central to Vygotsky's theory, but because he uses *meaning* with a number of different connotations in *Thinking and Speech*, there is often confusion about what he means when he uses *znachenie slova*. Vygotsky argues that children do not have to create or invent their language draw on the developed speech of the adults around them. This adult speech is based on systems of meaning captured as SOCIOCULTURAL MEANING in human knowledge and understanding. Vygotsky examines how meaning develops in a historical, natural, sociocultural context from humans' first use of language to the fully developed systems of knowledge in modern times. At times, Vygotsky uses *meaning* to refer to individual

words – meanings captured in dictionaries – Lexical Meaning (7a). At other times he uses meaning to refer to Meaning in a Social Context (7b) – the way in which knowledge and concepts are conveyed in an individual's particular sociocultural context. There is a level of fluidity in sociocultural meaning ranging from the most fixed, meanings that are codified in the dictionary, to the most fluid, Meaning in Language Use (7c) – language in specific utterances, written and spoken sign operations in particular social situations of development.

Meaning/*Znachenie Slova* (7d) that is internally appropriated through the sign operation and incorporated into an individual's speaking/thinking system is influenced by the social situation of development – who is interacting with the individual, what is the meaning being conveyed, and where the child is in the developmental process. There is a constant interplay between the sociocultural meaning and the meaning that is being created in the speaking/thinking system. In analyzing external sociocultural meaning, the focus should go beyond just the meaning and use of a particular word and also focus on the *processes* through which meaning is conveyed in phrases, sentences, idioms, metaphors, and larger texts, and then how it is internalized into the individual's meaning system. Vygotsky uses the concept of *sense* (smysl) to help explain the internalization process – a dialectical process through which *sense* develops the speaking/thinking system and is developed by it.

(8). Through the concept of SENSE Vygotsky examines the "three basic characteristics of the semantics of inner speech" (1987, p. 275) and focuses primarily on the "unique semantic structure" of inner speech, "indeed, the entire internal aspect of speech that is oriented toward the personality" (1987, p. 283). Attempts to describe Vygotsky's use of *sense* without considering that he is specifically using it to analyze an internal system miss his central points. It is true that the internal "unique semantic structure" has its origins in sociocultural meanings, but there are always going to be degrees of divergence between sociocultural meanings and the SENSE of words or concepts incorporated as meaning in an individual's speaking/thinking system.

Children's first words are dominated by the sense of visual perception and their emotional experience of the social situation of development in which words are being used. Their sense dominates

until their exposures to and interaction with adults in their social situations of development cause sociocultural meanings of words to play a more significant role in children's creation of meaning. The internalization process through which the child makes meaning of sociocultural meanings shapes the way that they are incorporated into an individual's Sense. In this process, Vygotsky points out that the "child's word may correspond with the adult's in object relatedness, but not in meaning" (1987, p. 153), thus creating a different sense. Sense (*smysl*) is an important component in the speaking/thinking system with sociocultural meaning as an essential but subordinate part of sense. This subordination is a defining characteristic of inner speech. "In inner speech, we find a predominance of the word's sense over its meaning" (1987, p. 274). "The meaning of the word in inner speech is an individual meaning, a meaning understandable only in the plane of inner speech" (p. 279). "To some extent, [sense] is unique for each consciousness and for a single consciousness in varied circumstances" (p. 276). Therefore, the sense of a word is never complete. Sense is "the aggregate of all the psychological facts that arise in our consciousness as the result of the word" (pp. 275-276) and is a transformative component in the development of the speaking/thinking system. "Ultimately, the word's real sense is determined by everything in consciousness which is related to what the word expresses…[and] ultimately sense depends on one's understanding of the world as a whole and on the internal structure of personality" (p. 276).

Essential to the speaking/thinking system is the *lifelong*, dynamic, dialectic interplay between sociocultural meaning and sense that develops in the internalization processes. *Sense's* course of development includes: the early trial and error period of syncretic images; the process of thinking in complexes; the development of everyday and scientific concepts; and adolescents' development of conscious awareness of their own thinking processes – thinking in concepts. There is an ongoing dialectical interaction in this development between the existing, relatively stable, external sociocultural meanings and sense in the speaking/thinking system.

The way in which sociocultural meaning is transformed as it is internalized can be seen at the level of single words in the difference

between the individual's sense of the word and common usage based on dictionary meanings. The word *mother*, for example, invokes for every individual a very personal *sense* of the word. At the same time there is the sociocultural meaning of the word denoting both a biological and cultural relationship. The divergence between sociocultural meaning and an individual's sense exists in both the internalization and externalization processes. Language can never fully express an individual's sense of a concept or a thought.

(9). Just as there is an individual's system of meaning and a sociocultural system of meaning, there is a sociocultural SYSTEM OF CONCEPTS (9) and an individual's System of Concepts (9a). The interaction with adults through the use of the pseudoconcept described above in (6) lays the groundwork for the next transformation in conceptual development as the child moves from concrete to abstract thinking, and from thinking in complexes to thinking in concepts. A system of concepts is built on the structure of generalization in the speaking/thinking system, being influenced by and influencing it, in a dialectical relationship. "The development of concepts or *znachenie slova* presupposes the development of a whole series of [mental] functions…voluntary attention, logical memory, abstraction, comparison, and differentiation" (1987, p. 170). Although the foundation for concepts is laid when children begin to acquire language, they do not use concepts existing in systems until they reach adolescence. As the child begins to isolate and abstract separate elements, and "to view these isolated, abstracted elements independently of the concrete and empirical connections in which they are given" (1987, p. 156), the speaking/thinking system undergoes a qualitative transformation as the child begins to think in concepts. "The concept arises when several abstracted features are re-synthesized and when this abstract synthesis becomes the basic form of thinking through which the child perceives and interprets reality" (p. 159).

The most important psychological process for adolescents in acquiring the ability to think in concepts is the development of an "internal meaningful perception of their own mental processes" (p. 190), through which they gain conscious awareness of their thinking processes. This introspection "represents the initial generalization or abstraction of internal mental forms of activity" (p. 190). Vygotsky argues that this

generalization and abstraction can only be accomplished through the process of developing a system of concepts, the source of which is the system that exists externally and includes scientific concepts, which are generally, but not exclusively, introduced at school. As it is internalized, this system of concepts becomes part of the process that is developing meaning in the speaking/thinking system. "Psychologically, the development of concepts and the development of *znachenie slova* are one and the same process" (1987, p. 180).

Vygotsky argues that scientific/academic concepts "can arise in the child's head only on the foundation provided by the lower and more elementary forms of generalization which previously existed" (p. 177). The systematic use of concepts transforms the structure of generalization as the system of scientific concepts "is transferred structurally to the domain of the everyday concepts, restructuring the everyday concept and changing its internal nature from above" (p. 192). A dialectical relationship is established with the everyday concepts in which the "scientific concept grows downward through the everyday concept and the everyday concept moves upward through the scientific…. In this process, [everyday concepts]...are restructured in accordance with the structures prepared by the scientific concept" (p. 220). The link between the everyday and scientific concepts as they move in opposite directions is that "*of the zone of proximal development*" (p. 220).

This systematization of concepts brings about a qualitative transformation in the speaking/thinking system, generating changes in adolescents' volition and creating a conscious awareness of their own thinking processes.

> Only within a system can the concept acquire conscious awareness and a voluntary nature. Conscious awareness and the presence of a system are synonyms when we are speaking of concepts, just as spontaneity, lack of conscious awareness, and the absence of a system are three different [ways of] designating the nature of the child's concept (pp. 191-192).

The adolescent's speaking/thinking system, which incorporates conscious awareness and systematization of concepts, yields a qualitatively different view of reality, because it has different relationships of generality than that of a system based on everyday concepts. (The following quote from Vygotsky, describing this different view, ends the description of the items in the diagram above.)

> According to a well-known definition of Marx, if the form of a manifestation and the essence of things coincided directly, then all science would be superfluous. For this reason, thinking in concepts is the most adequate method of knowing reality because it penetrates into the internal essence of things, for the nature of things is disclosed not in direct contemplation of one single object or another, but in the connections and relations that are manifested in movement and in the development of the object, and these connect it to all of the rest of reality. The internal connection of things is disclosed with the help of thinking in concepts, for to develop a concept of some object means to disclose a series of connections and relations of that object with all the rest of reality, to include it in the complex system of phenomena (1998, p. 54).

## Inner Speech and the Speaking/Thinking System

After analyzing the construction of the structure of generalization and the creation of a system of concepts, Vygotsky uses functional analysis to examine the internalization of speech and its mediation of thought central to the creation of meaning in the speaking/thinking system. The unit *znachenie slova* reveals "the complex structure of the actual process of thinking, the complex movement from the first vague emergence of thought to a completion in a verbal formulation" and shows how "meanings function in the living process" of the speaking/thinking system (1987, p. 249). In each stage in development "there exists not only a specific structure of verbal meaning, but a special relationship between thinking and speech that defines this structure" (p. 249). Vygotsky examines this relationship by describing the different planes through which "thought passes as it becomes embodied in the word" (p. 250).

Vygotsky begins his analysis with the external plane and then proceeds to the different internal planes, focusing mainly on inner speech. "Without a correct understanding of the psychological nature of inner speech, we cannot clarify the actual complex relationships between thought and word" (p. 255). As opposed to Piaget, who proposed that egocentric speech – articulated speech directed to oneself – disappears, Vygotsky argues that it becomes internalized in the form of inner speech as part of the process of intermental/external functioning becoming intramental/internal functioning. In this internalization process the function and structure of language changes, which in turn changes the speaking/thinking system. The transformations in the internalization of speech include fragmentation, abbreviation, and agglutination, along with predicativity. "The simplification of syntax, the minimization of syntactic differentiation, the expression of thought in condensed form and the reduction in the quantity of words all characterize this tendency toward predicativity that external speech manifests under certain conditions" (p. 269). Experimental research on inner speech reveals that:

> The structural and functional characteristics of egocentric speech develop along with the development of the child. At three years of age, there is little difference between egocentric and communicative speech. By seven years of age, nearly all of the functional and structural characteristics of egocentric speech differ from those of social speech. (p. 261)

Vygotsky's analysis of *znachenie slova* reveals the internal planes in the speaking/thinking system from external speech to inner speech, from inner speech to pure thought, and, ultimately, to the "motivating sphere of consciousness, a sphere that includes our inclinations and needs, our interests and impulses, and our affect and emotion. The affective and volitional tendency stands behind thought" (p. 282). Thought motivated in the affective/volition system combines with language in the speaking/thinking system leading to production of written or oral language. In this process "thought is not only mediated externally by y signs. It is mediated internally by meanings" (p. 282). "Where external speech involves the embodiment of thought in the word, in inner speech

the word dies away and gives birth to thought. To a significant extent, inner speech is thinking in pure meanings, though as the poet says 'we quickly tire of it'" (p. 280). There is a qualitative difference between the external meaning and function of language and the meaning and function it acquires through internalization into internal speaking/thinking systems.

> This outline of the characteristics of inner speech leaves no doubt concerning the validity of our basic thesis, the thesis that *inner speech is an entirely unique, independent*, *and distinctive speech function*, that it is completely different from external speech. This justifies the view that inner speech is an internal plane of *rechnoi myshlenie* [the speaking/thinking system] which mediates the dynamic relationship between thought and word. (1987, p. 279, italics in original)

## Qualitative Transformations in the Speaking/Thinking System

For Vygotsky, psychological systems do not proceed on a linear path; rather their courses are determined by qualitative transformations in the relationships between mental functions and other psychological processes. These qualitative transformations take place in the speaking/thinking system and affect and are affected by the development of the structure of generalization. Analyzing these qualitative changes leads Vygotsky to the central discovery of his research – that *znachenie slova* develops. His analysis of *znachenie slova* reveals that transformations in interpsychological relationships result in the speaking/thinking system's development. They include the:

(a) development of higher psychological processes through reconstruction of elementary processes;

(b) development of the structure of generalization in stages marked by different modes of thinking – syncretic, complexive, and conceptual;

(c) development of scientific/academic concepts in relationship to spontaneous/everyday concepts;

(d) internalization of speech and the development of inner speech; and

(e) transformations in the relationships of mental functions that bring about periods of "crisis" in children's development at approximately ages one, three, seven, and thirteen.

The unification of speaking and thinking processes brings about transformations *"from direct, innate, natural forms and methods of behavior to mediated, artificial mental functions that develop in the process of cultural development"* (1998, p. 168, italics in original). The higher psychological processes depend on new mechanisms that result not from the gradual, linear development of the elementary processes, but from "a qualitatively new mental formation [that] develops according to completely special laws subject to completely different patterns" (1998, p. 34). The development of this new formation, the speaking/thinking system with meaning and concepts at its core, leads to a transformation in which elementary "processes that are more primitive, earlier, simpler, and independent of concepts in genetic, functional, and structural relations, are reconstructed on a new basis when influenced by thinking in concepts" (1998, p. 81).

## Conclusion

Vygotsky states that his study had only just begun and that he had merely been able to show the complexity of the system that is created through the unification of thinking and speaking. He was not able to conduct more research on it as he died shortly after completing *Thinking and Speech.* His work, banned by Stalin's bureaucracy in 1936, remained virtually unavailable until 1956. When once again it began to see the light of day, it was through interpretations, which claimed that Vygotsky's unit *znachenie slova* was used to analyze consciousness as a whole and that it was not adequate for that task (Leontiev, 1981). Vygotsky clearly states he is using *znachenie slova* to examine the speaking/thinking system and not consciousness as a whole; nevertheless, Leontiev rejects Vygotsky's unit and substitutes an evolving series of units tied to human activity to analyze consciousness. Leaving to a further discussion the question of whether or not this substitution has merit, it has contributed to obscuring Vygotsky's analysis of the unit *znachenie slova* to reveal the speaking/thinking system, resulting in the phenomenon that Vygotsky put at the center of

his analysis being overlooked.

While it is impossible in a short article to do justice to Vygotsky's analysis of *znachenie slova* to reveal the complexity of the speaking/thinking system through which children make meaning of their worlds, I hope that this exploration has shown the value of reading Vygotsky's work, both broadly and deeply. Through such a reading, scholars can gain a better understanding of his notion of consciousness as a system of systems and also can see the overall coherence in his work as it evolved during his lifetime. Such an understanding can also stimulate further exploration of Vygotsky's analysis of the way that children make meaning of their worlds through the development of speaking/thinking systems.

## References

Leontiev, A.N., (1981). *The development of mind.* New York, NY: Progress Publishers.

Mahn, H. (2010). Vygotsky's methodological approach: A blueprint for the future of psychology. In A. Toomela & J. Valsiner (Eds.). *Methodological Thinking in Psychology: 60 Years Gone Astray?* (pp. 297–323). Charlotte: NC: Information Age Publishing.

Marx, K. (1933). Theses on Feuerbach. In *Selected Works*, Volume One, (pp. 471-473). Moscow: International Publishers. Also available at: http://www.marxists.org/archive/marx/works/1845/theses/theses.htm

Marx, K. & Engels, F. (1976). *The German ideology in Collected works*, Vol. 5. New York: International Publishers.

Vygotsky, L. S. (1987). *The collected works of L. S. Vygotsky: Vol. 1. Problems of general psychology.* R.W. Rieber and A. S. Carton (Eds.). New York, NY: Plenum.

Vygotsky, L. S. (1994). *The Vygotsky reader.* R. van der Veer & J. Valsiner (Eds.).Cambridge, MA: Blackwell.

Vygotsky, L. S. (1997a). *The collected works of L. S. Vygotsky: Vol. 3. Problems of the theory and history of psychology.* R.W. Rieber and A. S. Carton (Eds.). New York: Plenum.

Vygotsky, L.S. (1997b). *The collected works of L. S. Vygotsky: Vol. 4.*

*The history of the development of higher mental functions*. R.W. Rieber and A. S. Carton (Eds.). New York: Plenum.

Vygotsky, L.S. (1998). *The collected works of L. S. Vygotsky: Vol. 5. Child psychology.* R.W. Rieber and A. S. Carton (Eds.). New York: Plenum.

**Holbrook Mahn** is Associate Professor in the Department of Language, Literacy & Sociocultural Studies at the University of New Mexico College of Education, United States of America.

**Contact Address:** Direct corresponde to the author at 212 Hokona Hall, College of Education, University of New Mexico, Albuquerque, NM 8713. E-mail:hmahn@unm.edu

IJEP International Journal of Educational Psychology

Hipatia Press
www.hipatiapress.com

Instructions for authors, subscriptions and further details:

http://ijep.hipatiapress.com

# From Constructivism to Dialogism in the Classroom. Theory and Learning Environments

Roseli Rodrigues de Mello [1]

1) Universidade Federal de São Carlos

Date of publication: June 24th, 2012

To cite this article: Mello, R.R. (2012). From Constructivism to Dialogism in the Classroom. Theory and Learning Environments. *International Journal of Educational Psychology, 1*(2), 127-152. doi: 10.4471/ijep.2012.08

To link this article: http://dx.doi.org/10.4471/ijep.2012.08

*IJEP – International Journal of Educational Psychology Vol. 1 No. 2*
*June 2012 pp.127-152*

# From Constructivism to Dialogism in the Classroom. Theory and Learning Environments

Roseli Rodrigues de Mello
*Federal University of São Carlos, FAPESP - CNPq*

**Abstract**

This paper discusses the move from learning theories from the industrial society to learning theories from and for dialogic societies. While in the past intra-psychological elements, such as mental schemata of prior knowledge, were the key to explain learning, today theories point to interaction and dialogue as main means for achieving deep understandings of the curriculum. Concepts arising from psychology and sociology are essential to understand this new conceptualization of learning: dialogic learning, which implies a historico-cultural analysis of mind and the concept of communicative action. This dialogic turn in the explanation of learning has also found its manifestation in classrooms. The Interactive Groups is one learning environment grounded in the theory of dialogic learning which leads to improved academic achievement and coexistence. The article points out some of the dialogic elements of Interactive Groups which explain those results, illustrating how the dialogic construction of knowledge can be favored in classrooms worldwide.

**Keywords:** interaction, group work, constructivism, dialogic learning, interactive groups.


ISSN 2014-3591
DOI: 10.4471/ijep.2012.08

The organization of classrooms, since the school became part of educational systems, has assumed important variations according to the evolution of societies and learning theories (Aubert, Flecha, Garcia, Flecha & Racionero, 2008). Taking educational approaches mainly grounded in knowledge produced by psychology, we highlight three schools of thought that have influenced school practices since the second half of the 20th century.

In the first school of thought we find psychological theories that see learning as something that results from and depends on "suitable" and "advanced" models of thinking and behavior, models embodied in the figure of the teacher or specialist. In this perspective, programming of the exposure, relationships, materials, and interactions discourages alternatives of group work or of interaction among peers in the classroom, except in the form of tutoring. In interactions between peers, the more advanced student would serve as a parameter for the less advanced one, and would thus be a source for the other to learn. It is assumed that the most capable will never benefit from the interaction, but indeed would run the risk of regressing (Rosenthal & Zimmerman, 1972). Knowledge, understood as originating from a single stable and authoritative source, passes through the scrutiny of the teacher, a stable agent of authority, to be learned by each student. Also, it is considered that all students should reach the same learning port.

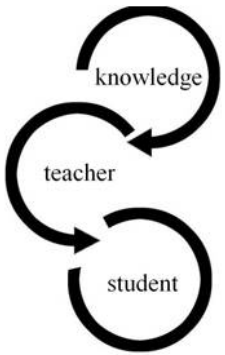


*Figure 1*. Vertical diagram of knowledge-teacher-student relationship.[1]

Later, in a different direction and concerned with the study and understanding of the processes of signification typical of human cognition, constructivist approaches began to strongly affect the organization of schools and classrooms (Lima, 1990). As a whole, constructivist theories have shown that several sources of knowledge and different experiences are at play in a classroom, and that the teacher must stop assuming the role of a filter of knowledge to be conveyed to the student, or of an organizer of the learning material to be used by the individual student, adopting, instead, the role of organizer of the students' relationship with knowledge and with each other. Starting from very different assumptions about intelligence, and thus producing very dissimilar theories and equally divergent school outcomes, we begin by discussing two constructivist theories, the Piagetian and the Ausubelian, which share a common vision of intelligence as something individual, but which differ from each other in their constitution.

In Piaget's constructivist theory, the structures and functions of human development are universal, occurring in unalterable sequential stages, with individuals varying only in their pace of learning according to their interactions with the physical and social environment (Piaget, 1987; Flavell, 1988). This pace can be modified by interaction among peers whose levels of learning differ from each other (Perret-Clermont, 1980; Perret-Clermont & Schubauer-Leoni, 1981). Also, the starting and ending points, even at different paces, are common to everyone.

In the Ausubelian perspective, individual intelligence is determined by the individual's social background (including his or her cultural, racial and gender origins), which would determine his or her greater or lesser propensity for school learning, since each new lesson learned depends on existing prior knowledge to which the new lesson can be linked (Ausubel, 1968; Ausubel, Novak & Hanesian, 1980). Thus, intelligence is equated with schooled ways of thinking, which posits socially marginalized groups as groups that are less capable (Valencia & Suzuky, 2011). It would be up to the teacher or teachers to prepare the lesson, the training courses, or the instructional material based on two elements: the student's level of prior knowledge and the structure of the contents to be learned, organizing the classroom based on meaningful learning by transmission on behalf of the teacher or by discovery. In the

Ausubelian perspective, it is primarily individual programs based on each student's prior knowledge which are most valued. Group work choices may consider the possibility of joining students who share the same type of origin, experience and levels of ability in the same classroom, or setting up different classrooms according to ability level. Considering that students have unequal starting points, it is expected that the points of arrival will be unequal as well. All research on ability grouping has demonstrated such student grouping to be ineffective in raising the levels of achievement of the less advantaged (INCLUD-ED Consortiu, 2009; Oakes, 1985).

According to the Piagetian and Ausubelian constructivist theories, scientific/academic knowledge synthesizes reality, but its apprehension is determined by the student's interpretative ability. In other words, the student grasps and learns knowledge: a) according to the consecutive and universal stages of development; b) depending on his or her group of origin and intrinsic motivation; c) through the stage at which he or she is, and d) in a manner determined by the starting cognitive point. In this framework, interactions serve to generate cognitive conflict between peers at the same developmental stage or at the border between two stages (Ferreiro, 2001). Such interactions serve for adaptation between peers at similar levels who collaborate with one another, or between peers at unequal levels to motivate the less advanced through a more affective than cognitive effect. Overall, both approaches, illustrate that in the constructivist school of thought of psychology we move from a vertical diagram of the relationship between knowledge, teacher and student, to a triangular diagram of relationships, which has been known as "interactive triangle" (See Figure 2).

More recently, delving deeper into the relationship between knowledge and meaning, principally under the influence of the Soviet school, constructivist approaches of psychology have focused on the study of the relationship between meaning and sense in learning processes, which has led constructivist scholars to point to the need to consider dialogic and communicative perspectives of interactions.

Referring to this process, Zittoun, Mirza & Perret-Clermont (2007) point out that the criticisms of the Piagetian theory about the insufficient attention to the cultural aspects of human development led Piaget

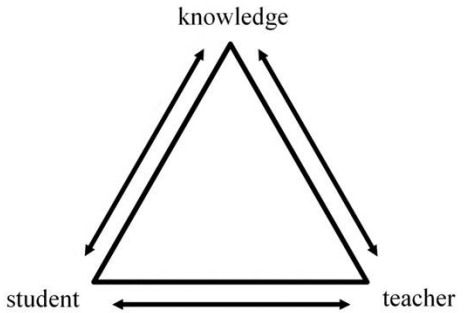


*Figure* 2. Interactive Triangle of the two-way relationship knowledge-teacher-student.[2]

himself to engage in new studies in different cultures (Piaget, 1966). Clinical trials about conservation (quantity, mass and volume) became a focal point in psychology, to verify the universality of the structures of thought, and were recognized as the most suitable model for the study of intelligence in different cultures. Under theoretical and methodological criticisms (Cole & Scribner, 1974), researchers in the so-called transcultural or intercultural studies area produced a body of knowledge that led to the advancement of understanding about psychological phenomena in relation to cultures which generates specific significations and meanings. According to Zittoun, Mirza, & Perret-Clermont (2007), in reference to the methods of investigation and the results found:

> The decentration treated by intercultural research thus reveals a hitherto invisible dimension: the signification of the task is not given in itself. The person to whom the task is assigned interprets and (re)constructs it, making use of his "personal culture," i.e., the languages, rules and modes of thought which he grew up with and to which he has access (p. 67).

Each person's group of origin and of coexistence are thus considered as sources and archives of knowledge that are deployed in any action of the individuals, which give meaning to the other, to his expectations and

to his actions, thus enabling him to engage in interactions with the objects in specific activities, or to communicate with others if the task requires cooperation in the activity. Unlike Ausubel et. al. (1980), who consider base cultures as subcultures -therefore less complex and causing environments in which less gifted intelligences are produced-, intercultural and transcultural studies have brought fundamental elements of culture as the context for the successful psychological development of individuals.

Returning to the Piagetian perspective, the focus of analysis and understanding lies in the mental structures of the individual, built through constant interactions with the environment – physical and social – during his development. The mind of the child is primary and egocentric and therefore, from this perspective, there is primacy of the individual in relation to social exchanges and to the cultural environment.

In the other position are the sociocultural or historical-cultural approaches, which consider the human mind as social and cultural (Vigotski, Luria & Leontiev, 1988). In this perspective, every act of the child is seen as occurring in an environment built culturally through the history of humanity (Tomasello, 1999). Thus, social interaction is constitutive of human development and of the mental processes of individuals.

Zittoun, Mirza, & Perret-Clermont (2007) organize the productions of sociocultural or cultural historical approaches, which they call post-Piagetian, into four distinct perspectives, as follows: (a) one that focuses on narrations and cultural works (Bruner, 1960, 1983, 1990), (b) one that focuses on activity as a central concept in the analysis of culture and mind (Scribner & Cole 1981; James Wertsch, 1991, 2002; Rogoff, 1990, 1995, 1998, 2003; Scribner, 1984), (c) one that focuses on the semiotic processes (Valsiner, 2000; Abbey, 2006; Lawrence & Valsiner 2003), (d) the one that focuses on dialogic processes, where are grouped the authors dedicated to the analysis of discursive processes and of negotiation of understanding and repositioning in group relations (Pontecorvo, 2004; Clôt, 1999; Rochex,1999; Muller & Perret-Clermont, 1999).

But what are the consequences of these most recent contributions to classroom organization and learning processes in school? How do they

support the social networking that individuals need for their development? In what follows we will answer this question through theories related to the concept of dialogic learning.

## Dialogic learning: interaction, intersubjectivity and learning in the information society

In today's context, the production of academic knowledge is intense as information is widely disseminated and incorporated into production systems and social life. The new information and communication technologies generate networks of creation, diffusion and the incorporation of knowledge into production processes in real time (Castells, 1999; Ianni, 2004; Flecha, 2000; Aubert et al, 2008; Racionero et al, 2012). In the Information Society, having access to information and knowledge networks, knowing how to select, among the multitude of accessible elements, analyzing what is found through critical scrutiny in order to make use of it become essential skills for effective functioning in many social spheres. Importantly, the democratization of the Information Society also depends on all students developing these abilities.

In addition, in current societies there is a growing demand for dialogue as a way to negotiate different aspects of life, and as a means to build coexistence in different social spaces. This phenomenon has been described as the "dialogic turn" of societies (Flecha, Gómez & Puigvert, 2001). Violence arises when dialogue is prevented, this augmenting inequalities. Thus, the incorporation of dialogue in the construction of better alternatives in society is a requirement to ensure equal rights and a better life for all. The transformation of school education in the light of dialogic needs and parameters is the subject of the next sections of this article.

The dialogic turn of society has also found expression in learning theories. In this sense, some scholars talk about a dialogic turn of educational psychology (Racionero & Padrós, 2011). This turn implies, on the one hand, placing interaction and dialogue at the center of current explanations of human learning, and design interactive learning environments that respond to how people learn in dialogic societies.

## Theoretical ground of dialogic learning environments

An essential view of theories of dialogic teaching and learning is that mind and cognition develops in social interaction. Vygotsky (1996) contributes to the understanding that the mind is formed socially, assuming a movement that is initially interpersonal, and later becomes intrapersonal. The process of development of each individual takes place through his relationships with others in his surroundings, with the more experienced adults in the culture assuming a leading role. Under the influence of Vygotsky, Bruner (2001) defines culture as "a set of tools with techniques and procedures to understand his world and deal with it" (p. 98), or "a way of dealing with human problems: with human transactions of all types represented by symbols" (p. 99). In providing this definition, Bruner can be considered one of the leading theoreticians of the concept of the social mind (Correia, 2003). For him, communication between individuals in a process of interaction mobilizes and produces knowledge, because "by making use of language to achieve their ends, children have more than mastery of a communication code; they negotiate procedures and meanings and when they do this, they are learning the path of culture as well as the path of language" (Alves et. al., 2007, p. 328). Rogoff (1990, 1995, 1998) has been also central in explaining the role of culture in development; for her, individual and culture are seen to be in a state of constant development, dynamically linked and inseparable (Costa & Lira, 2002).

If intersubjectivity is the basis for the construction of subjectivity and intelligence, then, interaction is a factor driving development. But are all types of interactions equally effective in driving learning? What kind of interaction leads to deeper knowledge construction?

Habermas (1987) helps us answer this question. It is in the interaction between different individuals that share unquestionable knowledge which belongs to the life world and is taken for granted how knowledge becomes problematized, enabling individuals to think about and examine it, and then make deliberate choices about its pertinence. Thus, when their basic knowledge is questioned, individuals feel themselves challenged, a process that links knowledge creation and interaction to identity development.

Each individual is constituted life worlds, whose knowledge he constitutes and reproduces, but that is called into question when such knowledge is removed from the general consensus, a situation only generated by the interaction between different individuals or by situations that call what is taken for granted into question. When this occurs, two paths are possible: conflict – if dialogue between the individuals cannot be established because there is no will to reach understanding or communicative consensus – or communicative action, producing new intersubjective knowledge that allows for joint action in the shared world. Mind, knowledge and action in the world are thus permanently constituted in the processes of communicative action (Habermas, 1987).

The deep relation between knowledge, its context of production, and its intended use is emphasized by both Habermas (1987) and Freire (1970, 1997). However, while Habermas is more concerned with the rational use that is made of knowledge and of techniques and technologies, Freire focuses more on the question of purpose of the production. Freire (1970) offers a critical perspective on knowledge to be produced, taught and learned, based on for and against what and who such knowledge is created. Habermas (1987) deposits elements of criticality in the presence of the greatest possible diversity of people upon analyzing the efficacy and correctness of the application of concepts, techniques and technologies to different contexts. The discussion between different individuals, assuming communicative rationality in the process of argumentation permeated by pretension of truth, appropriateness and authenticity is the way to achieve deeper understandings of reality and the result of reaching a state of intersubjectivity.

The concept of intersubjectivity is central to both these theoreticians. Habermas (1987) and Freire (1997) formulated theories that ontologically understood the individual and the system/s as inseparable. This perspective is compatible with psychological theories that consider mind and intelligence as social, understanding the processes of learning and subjectivity as intersubjective. Habermas (1987) expresses this inseparability in the theoretical formulation of the relation between life world and system. Freire (1997) expresses the dialectics between individuals and systems by conceptualizing objectivity and subjectivity

in dialectic relationship, or the link consciousness-world as inseparable.

In Freire (2003), the concept of "unity in diversity" is central and embodies the notion that dialogue and unity among different people, unity in the diversity of their origins and life projects, are necessary to enable individuals to fight for decent living conditions and to respect different ways of being. The opposite is what produces inequalities (Freire, 1970). This analysis shows how society and culture are present in the constitution of identities. Note that Freire (2003) draws attention to the fact that multiculturalism is not a "natural" process, but a product of colonialism, domination, and wars. Hence, to be experienced as a source of knowledge and human enrichment, a political decision must be made about how to achieve coexistence and the protection of those that are different (Mello, 2009a). For Habermas (1987), the coexistence of different cultures, not just side by side but also with one another, requires communication between them. The author claims the need for deliberative democracy to ensure the rights of citizens with different cultural backgrounds to live under the same rights.

The concept of dialogic learning (Flecha, 2000; Aubert et. al., 2008) is strongly underpinned by the aforementioned theories, and joins the most important interactionist and dialogic contributions from psychology, anthropology, sociology, pedagogy, etc to explain how people learn best in current dialogic societies. Dialogic learning takes place when a series of principles, seven, develop in social interaction, namely: egalitarian dialogue, cultural intelligence, transformation, instrumental dimension, creation of meaning, solidarity and equality of differences.

*Egalitarian dialogue* assumes that the statements and propositions of each participant are considered given the value of their contributions and not depending on their status in relation to age, profession, gender, social class, educational level, etc. This makes possible, for example, that the guide of a non-expert adult becomes acknowledged in the classroom as central to enhance all children's school learning (Tellado & Sava, 2010). Additionally, in environments designed upon the notion of dialogic learning, participants are often allowed to use their cultural intelligence (Flecha, 2000), that is, the set of academic, practical, and communicative abilities, to engage in knowledge construction. But this occurs in learning environments where three conditions are favored and

met: a) interactive self-confidence, b) cultural transfer (of non-academic abilities to academic settings), and c) dialogic creativity (new knowledge resulting from dialogue that capitalizes on everyone's abilities).

Importantly, by sharing different points of view and ways of solving problems through dialogue guided by validity claims, , *transformation* occurs at two levels: intrapsychological and interpsychologial. Intrapsychological because though dialogue existing knowledge gets transformed and expanded. Interpsychological because what is shared mentally is the result of the addition of every person's knowledge in dialogue with the knowledge of the others, which generates a new state of mind. Overall, dialogic learning is aimed at transformation, personal and socio-cultural, and not to adaptation.

Transformation requires emphasis on the *instrumental dimension* of dialogue as a means for knowledge making. Such instrumental dimension refers to those aspects of school knowledge which are required to trespass the doors of socio-economic access to the Information Society (Apple & Beane, 2007). Also, in a society where social change is constant, it is easier to see more processes of loss of meaning (Habermas, 1987). Participation in *dialogic learning* emerges as an important instrument for the *creation of meaning* (Elboj & Puigvert, 2004). Faced with multiple possible choices of how to live, it is difficult to design a single project for all groups or people, and it is difficult for the school to know which values to foster. But usually dominant groups impose their views and discourses, also in schools, and this generates crises of meaning. However, in dialogues where different points of view emerge and are acknowledged on the ground of argumentation, individuals come to know more possibilities and thus choose more freely and critically. Such process creates more opportunities for gaining greater coherence between dreams and actual life. This in turn relates to the principle of *solidarity*. In dialogic learning environments participants share their knowledge for the benefit of all members of the group.

Egalitarian dialogue, cultural intelligence, transformation, the instrumental dimension, creation of meaning and solidarity are also accompanied by the principle of *equality of differences* or, as Freire (2003) posed it, "unity in diversity". This principle breaks with the

inertia that cultural relativism imposes on people from different cultural groups, turning traditions into a mold to which their members must conform (perpetuating not only the relations of power and dominance within their own cultures but also the relations of power of the dominant culture upon the others). Through dialogic learning, each person builds new understandings about life and the world and reflects about his or her culture and that of others, thus gaining greater freedom to choose his way of living and relating to others, as well as creating respect for different modes of living (Giddens, 1995).

The seven principles of dialogic learning are related among them, despite each exists on its own as well. In each, meaning, life experiences, emotion, cognition, culture, and other elements come together, involving different people with whom students interact. This, again, differentiates dialogic learning from prior conceptions of teaching and learning. From the perspective of dialogic learning, the network of interactions and relationships that is formed around each student should be seen as a powerful learning generator of learning, which is no longer stable and merely triangular, as it was conceptualized in the constructivism approach. Students' developmental trajectories are embedded in complex networks that must be understood and taken into account in schools' organization, including that of the classroom, as a space that fosters intersubjectivity. Such constellation of spaces for students' learning and development that dialogic learning environments need to take into account can be represented as follows:

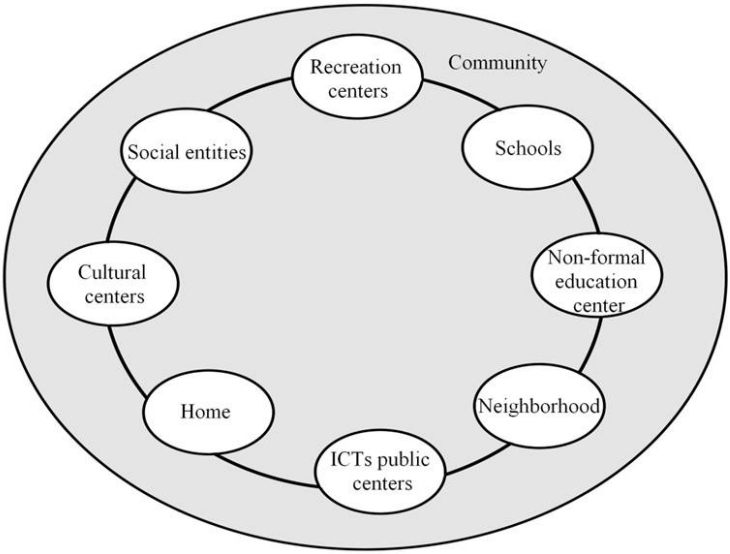


*Figure* 3. Contexts of interaction, learning and development.[3]

## Interactive groups: dialogic classroom organization

Interactive Groups is an inclusive and dialogic type of classroom organization and student grouping (INCLUD-ED Consortium, 2009) that illustrates how the dialogic turn of societies has reached the classroom. When a classroom is organized in interactive groups, teachers create three or four small groups of students depending on the total number of students in the class. The criterion for group composition always is for the maximum heterogeneity in terms of mastery level, ability, culture, race, ethnicity, language, gender, life styles, etc. While meeting this criterion, the grouping is conceptually driven, with teachers making ongoing changes depending on subject areas, lessons within every subject, social relations among students, and suggestions from volunteers. Family and community members participate in the classroom promoting dialogue and solidarity in the

groups with the objective that all students reach the highest learning teachers create three or four small groups of students depending on the total number of students in the class. The criterion for group composition always is for the maximum heterogeneity in terms of mastery level, ability, culture, race, ethnicity, language, gender, life styles, etc. While meeting this criterion, the grouping is conceptually driven, with teachers making ongoing changes depending on subject areas, lessons within every subject, social relations among students, and suggestions from volunteers. Family and community members participate in the classroom promoting dialogue and solidarity in the groups with the objective that all students reach the highest learning objectives. One community volunteer is placed in each group. This allows for the classroom teacher to manage the whole classroom dynamics while the students are working, or she or he can become an extra support in one of the groups. The activities in each group are approximately 20 minutes long, and after that time, each group moves to the next table and works on a different activity with a different adult. In some classrooms, it is the adult who moves rather than the students. The tasks in the groups are short and usually there is a thematic connection between them, with each focused on a different dimension of the lesson topic.

In the groups, students help each other and engage in dialogues to deepen the understanding of the content knowledge they are working on. The teacher is in charge of the classroom management, solves volunteers' and students' questions when necessary, and sometimes provides extra help for struggling students.

Schools involved in the Learning Communities project (Mello, 2009b), a project of educational and social transformation, apply a series of Successful Educational Actions (SEAs), among which we find the Interactive Groups. All these schools have shown to raise the academic achievement of their students as well as to improve social relations organizing the classrooms into interactive groups (INCLUD-ED 2006-2011). There are more than a hundred schools working as Learning Communities in Spain, and there are also schools as learning communities in Brazil and Paraguay. In this article, the organization and learning processes in interactive groups are explored through the case of three Brazilian schools.

## Method

### Participants

Three municipal primary schools in medium-sized towns in the interior of the state of São Paulo, which had been transformed into Learning Communities, participated in a survey carried out from 2007 to 2009 to determine the impact of the educational project on their practices (Mello, 2009b). The study was conducted with the participation of 34 professionals (teachers, coordinators and principals), 10 volunteers (women of various educational levels, ages and cultural backgrounds), and 50 students (9 and 10-year-old girls and boys from different cultural backgrounds).

### Procedure

Based on the communicative methodology of research (Gómez, Puigvert & Flecha, 2011), interviews were held with all the participants individually and in focus groups. The interviews (I) explored the participants' experiences, analyses and points of view regarding the processes and outcomes of learning and interaction in interactive groups. Transcripts of the interviews were coded by school (S1, S2 and S3), by category of the participant (professional – P –, student – s –, or volunteer – v –) and by number of participants (professionals: 1-34; students: 1-50, and volunteers: 1-10). In the two sessions of the focus groups (FG_1 and FG_2), conducted with each category of participants, the focus of the discussion was how interactive groups contribute to learning and to improve the relations of coexistence in the classroom. Finally, the paragraphs of each transcript of the interviews and the focus groups were numbered (§1-98) and, following the communicative methodology, they were assigned to two analytical dimensions: transformative (t.e.) and exclusionary (e.f.).

## Results

In terms of simple frequencies, the analysis of all paragraphs (a total of 681, distributed as follows: 250 from students, 348 from professionals and 83 from volunteers) led to the identification of 581 paragraphs about transformative dimensions of learning or living together in interactive groups, while 89 paragraphs indicated exclusionary dimensions.

With respect to the transformative dimensions, four categories emerged: improvement in instrumental learning (s.: 128; p.: 195; v.: 59), improvement in respectful coexistence (s: 91; p:122; v: 14), learning while teaching and teaching while learning (s: 29; p: 2; v: 10), and changes in self-concept (s; 4; p: 0; v: 0). As for the exclusionary dimensions, two themes emerged: insufficient number of volunteers (s: 2; p.: 18; v.:0), and inappropriate behavior of some adolescents in their role of volunteer (s.: 0; p.: 9; v.: 1).

The analysis of the data collected through the discussion groups, led to 791 paragraphs, distributed as follows: 112 from students, 535 from professionals, and 145 from volunteers. In terms of simple frequencies, the analysis of the paragraphs, led to the identification of 663 fragments about transformative dimensions on learning or living together in the classroom, and 128 indicated exclusionary dimensions. With regard to transformative dimensions, the 4 categories that emerged in the interviews were the same as those from the analysis of the interviews: improvement in instrumental learning (s.: 86; p.: 149; v.: 121), improvement in respectful coexistence (s: 24; p: 343 ; v: 21), learning while teaching and teaching while learning (s: 7; p: 16; v: 0 ), and changes in self-concept (s: 0; p: 0; v: 2). As for the exclusionary dimensions, the same two themes that emerged in the interviews arose here too: insufficient number of volunteers (s: 2; p.: 18; v.:0), and inappropriate behavior of some adolescents in their role of volunteer (s.: 0; p.: 9; v.: 1).

Interactive groups have two main objectives: to accelerate learning and to improve relations of coexistence in the classroom. As the data analyzed shows, both objectives are strongly emphasized by the participants, who added two other benefits related to the guide by a an adult who is more experienced in the culture of reference: the partici-

pants' improved self-concept, and the possibility of teaching and learning at the same time. Exclusionary dimensions had to do with the need for more volunteers to promote supportive interactions in the interactive groups.

To illustrate the qualitative part of the results of the study, in what follows, we highlight a series of excerpts from interviews with different categories of participants regarding the transformative dimensions that interactive groups bring to classroom insteractions. In the following quotation, a teacher highlights how interactive groups enhance learning processes and academic performance and, as a result, ultimately, students' learning is accelerated:

> When I first started working with the interactive group activity, I already felt the difference in the classroom. I could see that the students were faster in performing a given activity. I noticed that the activities proposed through the interactive groups accelerated the students' learning. (S2-I-p13, §21 ).

The characteristics of interactive groups make possible that students who otherwise would be left behind, in interactive groups engage in the same learning processes as higher achievers do and end up reaching the same curricular objectives. This perception is possible thanks to the support that students receive by peers and volunteers in every group:

> I have students who do not produce in some group or individual activities, but in the interactive group – I don't know if it's because there's someone there that helps a lot – it isn't is a presence of coercion, but a helpful presence, which is there to really help! So their interaction with the group is really cool! (S1-I-p1, §1).

The same teacher completes her statement by pointing out the remarkable increase in the pace of children's learning. In interactive groups children work more and complete learning activities that in a regular classroom usually take the double period of time:

> For example, the activity that I taught, which I knew took half an hour, the children now perform in ten minutes. Sometimes I couldn't believe they were able to do everything. (S1-I-p1, §2)

In addition, in the interactive group, individual learning is seen as a responsibility of the whole group. Therefore, when one student finds some difficulty in understanding the content knowledge, everyone gets committed to help him or her. In this process, teaching and learning take place simultaneously:

> The idea of group work is that the activity has been completed when everyone has succeeded, when everyone has finished it, and not when only one has done so, that's when they begin to understand the mechanism of the interactive group, right? And they begin to succeed in carrying out the activity. That's when they begin to feel capable. And as they increase their pace, they become more and more capable! At this point, they wait the group day eagerly, because they know that, on that day, they will do everything with the others. (S2-I-p4,§7)

As shown in the quotation above, as a student reaches the curricular objectives and is aware of her or his success thanks to the interactive groups, he or she improves his or her academic self-concept, and starts believing that it is possible to do it and to do it successfully with the help of peers and adults. But the gains are for everyone. In interactive groups, everyone benefits from the interaction because learning is intersubjective but also because interactions build upon the existing diversity among all participants. In this regard, the evidence collected shows that the higher the group's internal diversity, the greater and deeper the learning of every individual that is part of it, from both the intellectual and the human and social standpoint. Benefiting from Vygotsky's (1978) theoretical formulation about learning occurring through the mediation of more experienced individuals of the culture, in the Interactive Group, the volunteer himself contributes cultural diversity and instrumental knowledge, and also benefits from the interactions with the students. For example, some volunteers develop more motivation to learn contents of the school curriculum as they later teach that knowledge to the students, despite that is not required from volunteers:

> I relearned what I was forgetting, because you also learn by teaching. I would consult the books in the school's library collection, and whenever there was something I didn't know I would stay there until I learned it so that I could pass it on to the students. (S2-GF1-v1, §3)

The responsibility for learning is shared by everyone in the classroom, but with different roles. It is up to the teacher, the professional with pedagogical knowledge, to assume the commitment of planning the content and activities to be worked on in interactive groups, to explain to the volunteers the activities in the groups, and guide them and solve their questions when it is necessary. The classroom teacher is the one who ensures the correct development of the whole classroom dynamics, encouraging mutual support and respect among the children, youths and/or adults. A fundamental point of which the volunteer takes care of is the way in which the activity is carried out jointly, so that when any student experiences difficulty in solving a given activity, the others also focus on helping him. This encourages role exchanges, in which students can both teach their classmates and learn from them, thereby learning, through egalitarian dialogue, to share efforts and act with solidarity (Elboj et. al., 2001). Children perceive this solidarity in the volunteers, appreciate their unique support, and acknowledge their positive influence in students' learning:

> Each volunteer teaches in a different way, and they all help us to learn things that we often did not know. We like volunteers because they help us carry out the activities and because they want us to be smarter. (S3_I_s35, §2).

Teacher also see as strength for children's learning the fact that volunteers bring to the classroom new abilities, new knowledge, and new role models. The following quotation illustrates how for teachers diversity among adults in interactive groups is a source of instrumental learning:

> I think the interactive group is important for students because it ensures the presence of other people in the classroom. The presence of more people allows for a certain degree of diversity in the classroom. The idea that only the teacher teaches is out. Thus,

> children learn new things with new people, because each one has his particular way, a language, and a different way of teaching. (S3_I_p31,§22).

Also, according to teachers, the presence of more and diverse adults in the classroom also creates opportunities for the development of interactive confidence grounded in solidarity bonds, also necessary for learning:

> The students quickly create bonds with volunteers. They miss a volunteer when he doesn't come or stops coming. When, for whatever reason, the interactive group is not held, they miss it. The students learn to trust these people. (S3_I_p31,§23)

## Conclusions

In the Information Society, where both the production of knowledge and its impact on the forms of production and reproduction of human life assume the form of networks among individuals, groups, and institutions, learning takes place intensely in different locations and in the interaction among different people. Given these social changes that have increased the use of communication as a means for solving problems together, the psychological theories that see the formation of the mind in social, historical and cultural processes are more appropriate to support the development of successful school practices (Bruner, 1960, 1983, 1990; Scribner & Cole, 1981; Wertsch, 1991, 2002; Rogoff, 1990, 1995, 1998, 2003; Valsiner, 2000; Muller & Perret-Clermont, 1999).

In this regard, one of the most influential approaches in teaching and learning is Dialogic Learning (Flecha, 2000; Freire, 1970; Wells, 2001), which builds upon the strengths of previous theories of learning but surpasses them in merging the most important dialogic contributions from different disciples in view of reaching a deeper understanding of how people create knowledge together. Among other central differences with Piagetian and Ausubelian perspectives, in the dialogic learning perspective, the main aspect to take into account when designing instruction is not prior knowledge but where

we want to bring the students, their zone of potential development (Vygotsky, 1978). Also, in dialogic learning, we move from interaction based on the constructivist triangle (Piaget, 1966, 1987a), which advanced with respect to previous models of teacher-student vertical relationship regarding knowledge (Rosenthal & Zimmerman, 1972) to interactions with multiple others. In line with Vygotskian theory, in order to achieve the potential level of development, learning environments need to be reorganized to foster interaction among peers with different level of competence and with more adults. Interactive Groups is a learning environment which responds to these needs.

The results of the research discussed here (Mello, 2009b) reveal that participation in interactive groups guided by adults and youth from the community, who join the classroom to promote interaction among diverse peers regarding curricular activities, favors instrumental learning, improves respectful coexistence in the classroom, strengthens the academic self-concept of the participants, as well as creates the conditions for learning and teaching simultaneously. These results are consistent with other research on processes of dialogic learning in interactive groups (Racionero, 2011) and its outcomes in comparison to non-inclusive and non-dialogic classrooms (INCLUD-ED Consortium, 2009).

Overall, the review of the literature and the findings about the perceptions on learning in interactive groups inform us about the need and benefits for transforming school learning environments to make them align with the current tendencies and claims regarding how people learn and develop. While cooperative classrooms represented a step in this regard in relation to more traditional classroom organizations, other learning environments more in line with new learning realities, such as interactive groups, move a step further by means of diversifying interactions with adults from the community and benefiting from their unique contributions as guides of children's meaning making processes. On the ground of these findings, schools should open their doors, and that of their classrooms, to make social tendencies reform learning environments using the evidence of existing research about successful learning environments to ultimately improve all children's learning and achievement.

## Notes

[1] This figure illustrates the conductist perspective of interaction in the classroom.
[2] This figure illustrates the Ausbelian perspective of interaction in the classroom.
[3] Source: Aubert et. al. (2008). *Dialogic learning in the information society,* p. 88. Barcelona: Hipatia.

## References

Abbey, E. (2006). Perceptual uncertainty of cultural life: becoming reality. In Valsiner, J.; Rosa, A. R. (Eds.). *Handbook of sociocultural psychology.* Cambridge: Cambridge University Press.

Alves, A.C.S; Dias, M.G.B & Sobral, A.B.C. (2007). Faz-de-conta e Teoria da Mente. *Psicologia em Estudo, Maringá, 12*( 2), 325-334.

Apple, M.W., & Beane, J. (Eds.) (2007). *Democratic schools: Lesson in powerful education* (2nd ed.). Portsmouth, NH: Heinemann.

Aubert, A., Flecha, A., García, C., Flecha, R., & Racionero, S. (2008). *Aprendizaje dialógico en la sociedad de la información*. Barcelona: Hipatia.

Ausubel, D.P. (1968). *Educational psychology: a cognitive view.* New York: Holt, Rinehart and Winston.

Ausubel, D.P.; Novak, J.D. e Hanesian, H. (1980). *Psicologia educacional*. Rio de Janeiro: Interamericana.

Bruner, J. S. (1960). *The process of education*. Cambridge, Mass.; London, UK: Harvard University Press.

Bruner, J. S. (1983). *In search of mind: essays in autobiography.* New York, NY: Harper and Row.

Bruner, J. S. (1990). *Acts of meaning*. Cambridge: Harvard University Press.

Bruner, J. (2001). *A cultura da educação.* Porto Alegre: Artmed.

Castells, M. (1999). *A sociedade em rede. Vol. I*. Rio de Janeiro: Paz e Terra.

Clôt, Y. (1999). *Avec Vygotsky.* Paris: La Dispute.

Cole, M. & Scribner, S. (1974). *Culture and thought. A psychological introduction.* New York: John Wiley.

Correia, M.F.B. (2003). A constituição social da mente. *Estudos de*

*Psicologia, 8*(3), 505-513.
Costa E. V. & Lyra, M.C.D.P. (2002). Como a Mente se Torna Social para Barbara Rogoff? A Questão da Centralidade do Sujeito. *Psicologia: Reflexão e Crítica, 15*(3), 637-647.
CREA. (2006-2011). *Strategies for inclusion and social cohesion in Europe from Education*. 6th Framework Programme, European Commission.
Elboj, C., Puigdellívol, I., Soler, M., & Valls, R. (2002). *Comunidades de aprendizaje. Transformar la educación*. Barcelona: Graó.
Elboj, C., & Puigvert, L. (2004). Interaction among 'other women': Personal and social meaning. *Journal of Social Work Practice, 18* (3), 351-364.
Ferreiro, E. (2001). *Com todas as letras*. São Paulo: Cortez.
Flavell, J. H. (1988). *A psicologia do desenvolvimento de Jean Piaget*. São Paulo: Livraria Pioneira Editora.
Flecha, R. (2000). *Sharing Words*. Lanham, M.D: Rowman & Littlefield.
Flecha, R., Gómez, J., & Puigvert, L. (2003). *Contemporary Sociological Theory.* New York: Peter Lang.
Freire, P. (1970). *Pedagogy of the oppressed.* New York: Continuum.
Freire, P. (1997). *A la sombra de este árbol.* Barcelona: El Roure Ciencia.
Freire, P. (2003). *Pedagogia da esperança – um reencontro com a pedagogia do oprimido*. Rio de Janeiro: Paz e Terra.
Gómez, A., Puigvert, L., & Flecha R. (2011). Critical Communicative Methodology: Informing real social transformation through research. *Qualitative Inquiry, 17*(3), 235-245.
Habermas, J. (1987). *The theory of communicative action. Vol.II. Lifeworld and system: A critique of functionalist reason.* Boston: Beacon Press.
Habermas, J. (1999). *La inclusión del otro.* Barcelona: Paidós.
Ianni, O. (2004). *A era do globalismo.* Rio de Janeiro.
INCLUD-ED Consortium. (2009). *Actions for success in schools in Europe*. Brussels: European Comission.
Lawrence, J.& Valsiner, J. (2003). Making personal sense. An account of basic internalisation and externalisation processes. *Theory & Psychology, 13*(6), 723-752.

Lima, E. (1990). O conhecimento psicológico e suas relações com a educação. *Em Aberto, 9* (48), 2-24.

Mello, R. R. (2009a). Diálogo y escuela en Brasil: Comunidades de aprendizaje. *Cultura y Educación, 21* (2), 171-282.

Mello, R.R. (2009b). *Comunidades de Aprendizagem: aposta na qualidade da aprendizagem, na igualdade de diferenças e na democratização da gestão da escola*. São Paulo: FAPESP & CNPq.

Muller, N. & Perret-Clermont, A.-N. (1999). Negotiating identities and meanings in the transmission of knowledge: analysis of interactions in the context of a knowledge exchange network. In: Bliss, J., Säljö, R., Light, P. (Ed). *Learning sites, social and technological resources for learning*, (pp. 47-60). Earli: Pergamon.

Oakes, J. (1985). *Keeping tracking: How schools structure inequality.* New Haven: Yale University Press.

Perret-Clermont, A.-N. (1976). Vers une approche des relations entre l'enfant, l'école et la vie à travers l'etude de la communication, *Cahiers de la Section des Sciences de l'Education Université de Genève 2*, 3-13.

Perret-Clermont, A.-N. (1980). *Social interaction and cognitive development in children*. London: Academic Press.

Perret-Clermont, A.-N. & Schubauer-Leoni, M.-L. (1981). Conflict and cooperation on opportunities for learning. In Robinson, W. P. (Ed.). *Communication in development*, (203-233). London: Academic Press.

Piaget, J. (1966): Nécessité et signification des recherches comparatives en psychologie génétique. *International Journal of Psychology*, *1*, 3-13.

Piaget, J. (1987a). *Seis estudos de psicologia*. Rio de Janeiro: Forense-Universitária.

Pontecorvo, C. (2004). Thinking with others: the social dimensions of learning in families and schools. In: Perret-Clermont, A.-N. et al. (Ed.). *Joining society: social interactions and learning in adolescence and youth*. (pp. 227-240). New York/Cambridge: Cambridge University Press.

Racionero, S., & Padrós, M. (2010). The Dialogic Turn in Educational Psychology, *Revista dePsicodidáctica, 15*(2), 143-162.

Racionero-Plaza, S. (2011). *Dialogic Learning in Interactive Groups. Interactions that foster learning and socio-cultural transformation in the classroom.* Unpublished doctoral dissertation. Defended at the University of Wisconsin-Madison, WI, USA.

Rochex, J.-Y. (1999). *Le sens de l'experience scolaire*. Paris: Presses Universitaires de France.

Rogoff, B. (1990). *Apprenticeship in thinking*. New York: Oxford.

Rogoff, B. (1995). Observing sociocultural activity on three planes: Participatory appropriation, guided participation, and apprenticeship. In J. V. Wertsch, P. Del Rio & A. Alvarez (Ed.), *Sociocultural studies of mind*, (pp. 139-163). Cambridge, UK: Cambridge Universtity Press.

Rogoff, B. (1998). Cognition as a collaborative process. In W. Damon, D. Kuhn & R. S. Siegler (Ed), *Handbook of child psychology: Cognition, perception and language*, (pp. 679-744). New York: Wiley, 2.

Rogoff, B. (2003). *The cultural nature of human development*. New York: Oxford University Press.

Rogoff, B., Goodman T. C., & Bartlett, L. (2001). *Learning together: Children and adults in a school community.* New York: Oxford University Press.

Rosenthal, T. L. & Zimmerman, B. J. (1972). Modeling by exemplification and investigation in training conservation. *Development Psychology, 6*(3), 392-401.

Scribner, S. & Cole, M. (1981). *The psychology of literacy.* Cambridge, MA: Harvard University Press.

Scribner, S. (1984). *Studying working intelligence*. Cambridge. MA: Harvard University Press.

Tellado, I., & Sava, S. (2010). The role on nonexpert adult guidance in the dialogic construction of knowledge. *Journal of Psychodidactics, 15*(2), 163-176.

Tomasello, M. (1999). *The cultural origins of human cognition.* Cambridge, Massachusetts: Harvard University Press.

Valencia, R., & Suzuky, L. (2001). *Intelligence testing and minority students: Foundations, performance factors, and assessment issues*. Thousand Oaks, CA: Sage.

Valsiner, J. (2000). *Culture and human development*. London/Thousand

Oaks: Sage.
Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge: Harvard University Press.
Vygotsky, L. S. (1996). Teoria e método em Psicologia. São Paulo: Martins Fontes.
Vygotsky L. S., Luria, A.R. & Leontiev, A. N. (1988). *Linguagem, desenvolvimento e aprendizagem*. São Paulo: Editora da Universidade de São Paulo.
Wells, G. (1999). *Dialogic inquiry. Towards a sociocultural practice and theory of education*. Cambridge: Cambridge University Press.
Wertsch, J. V. (1991). *Voices of the mind. A sociocultural approach to mediated action*. Cambridge, MA: Harvard University Press.
Wertsch, J. V. (2002). *Voices of collective remembering*. New York: Cambridge University Press.
Zittoun, T.; Mirza, N. M. & Perret-Clermont, A. (2007). Quando a cultura é considerada nas pesquisas em psicologia do desenvolvimento. *Educar, Curitiba, 30,* 65-76.

**Roseli Rodrigues de Mello** is Associate Professor in the Department of Theories and Pedagogical Practices at the Federal University of Sao Carlos, Brazil. She is also director of NIASE (Nucle Investigação e Ação Social e Educativa).

**Contact Address:** Rod. Washington Luis, 235 - São Carlos, Brazil (13565-905). E-mail: roseli@power.ufscar.br

IJEP International Journal of Educational Psychology

Hipatia Press
www.hipatiapress.com

Instructions for authors, subscriptions and further details:

http://ijep.hipatiapress.com

# ICT Alone is Not Enough, the Whole Village is Needed. A Community-Based and Dialogic Approach to Technology in Schools

Suzanne Gatt[1] & Teresa Sordé[2]

1) University of Malta
2) Autonomous University of Barcelona

Date of publication: June 24th, 2012

To cite this article: Gatt, S. & Sordé, T. (2012). ICT Alone is Not Enough, the Whole Village is Needed. A community-based and dialogic approach to technology in schools. International Journal of Educational Psychology, 1(2), 153-174. doi: 10.4471/ijep.2012.09

To link this article: http://dx.doi.org/10.4471/ijep.2012.09

*IJEP – International Journal of Educational Psychology Vol. 1 No. 2*
*June 2012 pp.153-174*

# ICT Alone is Not Enough, The Whole Village is Needed. A Community-based and Dialogic Approach to Technology in Schools

Suzanne Gatt
*University of Malta*

Teresa Sordé
*Autonomous University of Barcelona*

## Abstract

The socio-cultural context shapes learning and development. Thus, schools cannot ignore neither the transformations shaping their surrounding societies, but be an active part of them, nor what those transformations mean for school learning. In this regard, technology has changed the way we think and learn, and learning has been shown to be deeply linked to the community of which we are part. However, benefits of involving the community in the ICT use in schools are barely explored in the literature; this article is aimed to shed some light on that aspect. We draw from a successful case, the Ariño school, and based on the dialogic learning theoretical framework, different strategies that promote a dialogic use of ICT are presented: community involvement in self-sufficient classrooms, community involvement outside the school settings, and community digital literacy. This analysis leads to the proposal of a community-based and dialogic approach to technology in schools.

**Keywords:** ICT, dialogic learning, educational success, rural schools, community involvement


ISSN 2014-3591
DOI: 10.4471/ijep.2012.09

*We were very surprised, since the classroom was very different to the ones we used to have*. Pilar, alumni and a mother of two students attending the rural school Ariño, compared her two children school to hers when she was a student there. The blackboard and the teacher standing in front of the well-seated and silence students working on their own or listening patiently to the teacher's lesson have been substituted by PC tablets, dialogues and circles of students, teachers and volunteers. This is how the Ariño learning community—two rural partner schools— look like today. Pilar reflected on the deep transformations the schools have undergone and in which ways neighbours have integrated Information and Communication Technology (ICT) in their everyday lives. The Ariño village has been included in the information society, not only because ICT has been made accessible but because they are used from a dialogic perspective. In this article, authors argue that in order to make ICT relevant for social inclusion, there is a need to develop a dialogic use of ICT that is means using ICT following the Dialogic Learning principles (Racionero & Valls, 2007). The case of Ariño shows how, the strong commitment of this community has led the village and the educational centre to be internationally recognized as "the school of the future." (Microsoft, 2007).

The transition from an Industrial to an Information Society has meant a shift from a focus on material resources to intellectual ones. Not only has it changed the way people work and manage their finances, but also their daily lives: in how they access knowledge; communicate; as well as socialise. Knowledge is a determining factor in the constitution and development of the Information Society, and consequently also in terms of people's inclusion into it (Castells et al. 1999). It is no longer true that "those who have the information have the power" since more and more information is easily accessible. The real challenge has changed from one of access to knowledge to that of selecting and processing knowledge to identify relevant information depending on the situation in hand (Flecha et al, 1999, p. 65).

This transition has not left education aside. Learning should include a critical approach to the use of technology, facilitating the acquisition of skills to select and process the information. Therefore, the teacher's role has changed from one of a knowledge provider to that of a facilitator

which helps students learn how to process and select relevant information from all that is available. The introduction of ICT in classrooms becomes a much more complex issue than a mere technical one. It requires a transformation of the teaching and learning context. This transformation can be achieved from a dialogic approach involving on it all the social agents, including: the family; the community; and the peers (Aubert, García & Racionero, 2009). In this article, the case of Ariño illustrates how the dialogic use of ICT involving strong community participation benefits not only the students but the whole village.

In doing so, the argumentation is structured into five parts. First, there is a literature review on the benefits of using ICT counting with community involvement. Second, the theoretical underpinnings of the dialogic use of ICT are presented. It is followed by an explanation of the methodology used, and a description of the selected case. Some of the findings related to the dialogic use of ICT are reported here as well as all the transformations which have been generated beyond the school walls. The article ends with some final reflections emerged from the findings.

## ICT and community involvement in the schools

ICT has deeply shaped the most recent developments of teaching and learning. Educational success and social inclusion depend every time more on the skills to manoeuvre the existing information (Gorz, 1983; Castells et al, 1999; McFarlane & Sakellariou, 2002). According to Buckingham (2007), the new digital divide is not only defined by the ICT quality access, in terms of the equipment and the information resources, but more on the kind of support from other adults, if any, children receive in their ICT use. Children belonging to vulnerable groups or from LSES backgrounds tend to have more difficulties in having this type of access (Buckingham, 2007, p. 84). However, as argued here, by transforming the environment through community involvement in the dialogic use of ICT, this new digital divide can be diminish and even reversed.

These new tools and skills cannot be introduced at the school lonely

ignoring what is going on in the outside society. There is a growing need to coordinate what happens in the school with what happens at home, the street and the new virtual social spaces (e.g. instant message systems, social networks and so on) (Aubert et al, 2009). Research exploring the potential of community involvement in the use of ICT at the school is found to be an emerging field. While very limited attention has been paid in the community involvement in the ICT educational literature, a similar pattern is found in the case of school and community participation in the case of ICT access. Some of the relevant work in the area and more specifically the identified benefits are reviewed in what follows.

First, there is a body of research that has been exploring the crucial role that community involvement play in developing a critical use of ICT. For more than a decade, digital competence has been considered as one of the basic key competences for lifelong learning in the European Qualifications Framework (European Commission, 2005). Key competences were defined as a combination of knowledge, skills and attitudes which every individual needs for personal fulfilment and development, active citizenship, social inclusion and employment. However, there is a need for a step beyond of digital competence: a critical use of ICT. This skill should not only be learned for the academic purpose, but to be transferrable to the variety of contexts in which children are using ICT today. In doing so, the traditional teaching and learning model based on the exclusive relationship between the teacher and the students is not enough. The research conducted from the critical media literacy shows how teachers and adults in general should support the critical use of the media (Macedo & Steinberg, 2007). The interaction with peers or adults instead of an isolated use contributes to elaborate more critical analysis of the messages. For this to happen, it is necessary to create the conditions that allow for these spaces to exist during school hours, after school programs, weekends, at home and so on. Although children are very often much more grasped in the ICT use, the contents are mainly produced within the existing gender, cultural, sexual, consumption, value and other systems. Peers and adults can bring into dialogue their experience and knowledge to promote a more shared critical read of the world.

Research has also identified new emerging risks like bullying and sexual abuse that should be seriously considered (Livingston, 2003; Layard & Dunn, 2009). These risks need to be taken into account within the critical digital competences and as something to prevent by all the members of the educational community. The family involvement will not be enough and the entire community in its own diversity is necessary in the prevention of these types of misconducts. At the International Youth Advisory Congress (2008), participants asked teachers, family members and other adults to get involve and to inform everybody about the risks involved. Oliver, Flecha and Soler (2009) demonstrated how not only a major coordination among homes, communities and schools on the prevention of gender violence is needed but also the involvement of the other women who without an academic degree have much to contribute to this issue. This coordination is developed through the creation of mixed committees composed by teachers, family members and students. These committees are in charge of defining preventive measures according to what has been decided by the entire learning community.

A second benefit identified in the revision of the scientific literature on ICT and community involvement is their positive association with the students' academic achievement. The Becta report (2006) conceptualized e-maturity where schools with greater levels of ICT manage to achieve a faster increase in academic results than those with a low level. E-maturity was defined as the ability to make strategic and effective use of technology in order to improve educational results. The academic and non-academic benefits obtained from the inclusion of ICT have been reported in the case of at risk groups, for example, cultural minorities and people with disabilities benefit from the use of ICT for learning (Edmunds, 2008; Balanskat et al. 2006; Meiring & Norman, 2005).

A third benefit is the transformations that take place beyond the school walls. Different types of technological developments can support in more or less measure parental involvement with schools and their children's learning (Lewin & Luckin, 2010; Angus, Snyder, & Sutherland-Smith, 2004; Stevenson, 2008).

Schools cannot afford to be far removed from this reality if they do not want to be irrelevant. The schools' role in fighting the digital divide

becomes especially important in those cases where access to ICT is not possible at home but depends on the opportunities provided by the school. Schools are not only places in which children are educated for future employment, but they are also bridges providing access to ICT for the families in the community. The more families use ICT, the more they are able to respond to the digital collaborative learning activities which their children are involved in (Anastasiades, Vitalaki & Gertzakis, 2008). For that reason the involvement of families and communities becomes important, in the overcoming of the generational divide. Thus, the dialogue held on the use of the media and the related material is extended to the daily interaction of all of the members.

The three benefits identified in the literature—a more critical approach to media literacy, positive influence in academic performance and benefits for the community—are all closely connected to the creation of dialogic spaces to use ICT. In the next section, the seven principles of the Dialogic Learning are presented, serving as a frame for the dialogic use of ICT.

## The dialogic use of ICT

Puigvert and Flecha (2004) defined the dialogic use of ICT drawing from the seven principles of the dialogic learning (Aubert et al., 2009). These principles were created taking the contributions of Freire, Habermas, Vygotsky, Chomsky, Scribner, and Mead and many others into account.

Egalitarian dialogue is the first one. It means that agreements are reached through the force of arguments and not through existing power relations (Habermas, 1981) (e.g. a teacher versus an illiterate mother). The use of ICT can lead to a more democratic and horizontal participation which is open to all (Pulido, 2007). The dialogic use of ICT involves the promotion of these types of spaces, for instance, by inviting community members to participate in discussions, consultations or blogs related to the school or the village. Egalitarian dialogue means to promote all types of dialogic interactions, with everyone within the community, and not only with teachers, which has an impact on children's learning. In this context, ICT can promote a collaborative learning process in which the diversity of interaction stimulates the

construction of knowledge.

The second principle refers to the equality of differences that means that everyone, besides his or her own difference, have equal access to social opportunities. In terms of ICT, this means that different strategies can be developed in respect to both diversity and equality. ICT allows traditional models that tend to homogenise reality or participation to make way for more plural and democratic ones. For instance, there is not only one way to learn ICT, different people learn using very diverse strategies. This leads us to the third principle, which is cultural intelligence. This is understood here to be the intelligence provided by each person through their own living experience. It includes academic and practical intelligence as well as communication skills (language and action). The more diversity in terms of types of intelligence which is contributed to the community, the richer education on the critical use of ICT becomes. For example, if a discussion is being held in relation to the debate on freedom of expression and the regulation of online racist material, the debate will be richer if other people from the community also take part in it. If an immigrant father who volunteers in an anti-racist association, a student cousin writing her master thesis on racism participate in the debate, as well as a grandmother who has experienced the Nazi Germany era, then different types of intelligence provide more information, criteria, and arguments which enrich the critical reflection process of all. Thus students not only gain academic knowledge from the cousin, but also from the grandmother's and the father life experiences. In that case, a greater instrumental dimension in learning, which is the third principle of dialogic learning is achieved.

Through dialogue, the equality of difference, and value being placed on the intelligence and knowledge of each person, relationships involving greater solidarity are established between the people participating in that community. This contributes to one of the other principles, which is that of solidarity (Freire, 1997). The democratising force of ICT has led to many examples of how people can organise themselves into movements involving solidarity, and how they used it as a tool to coordinate each other and carry out joint actions. Moving into the field of the local educational community, the promotion of solidarity two other principles which are the creation of meaning, based on the

need to provide a meaning to all the actions we conduct (Weber, 1968) and transformation instead of adaptation (Freire, 1997).

The last but not least principle is transformation that occurs as soon as traditional interaction based on power begins to change progressively towards more egalitarian interaction. For example, the fact that assemblies are set up (in which teachers, families and also students participate) leads to end with the decision making monopoly that teachers had. All the transformations which are generated through the interaction established in the school and the use of ICT, have a direct impact on interaction outside school. More opportunities for the future are created, since the community holds more debates on the current needs and challenges, while at the same time deciding how to respond to them together. In this debate the use of ITC is seen as a crosscutting tool, although not as an end in itself. The aim is to overcome the inequalities generated by the digital divide, to accelerate children's academic progress, and to improve the community overall opportunities. The dialogic use of ICT helps to empower the whole community from a critical perspective. As a consequence of this learning children find that adults acquire a greater critical capacity for the use of ICT and therefore enrich the interaction they share, while at the same time promoting their autonomy in relation to ICT use. In turn this interaction between teachers, family members, and children, increases the well-being of the whole community, and the traditional problems of conflict or distance between the school and the family are overcome. The children also feel that they are in a more positive environment, and this promotes greater self-esteem for all the people involved.

## Methodology

The Ariño case study has been conducted within the European Sixth Framework Programe project INCLUD-ED Strategies for Inclusion and Social Cohesion in Europe from Education" (2006-2011). The main aim of the INCLUD-ED project is to analyze educational strategies that contribute to overcoming inequalities and promoting social cohesion, and educational strategies that generate social exclusion. With 15 partners from 14 countries in Europe, the INCLUD-ED project contains

six projects which focus on researching the question of social exclusion and education from different perspectives, including the role of social structures, policies, social agents and transformative educational projects.

The INCLUD-ED research and the case- study presented here are framed under the contributions of the Critical Communicative Methodology (CCM) (Gómez, Latorre, Sánchez & Flecha, 2006). CCM starts from the premise that the creation of new knowledge arose from the egalitarian dialogue among researchers and the researched. Researchers are responsible to bring in the scientific community advancements, not to hide it, but to share it and to create more and better intersubjective knowledge. The researched perspective is present throughout the entire research process. The dialogic creation of knowledge guarantees the excellence and quality of the findings as well as their relevance for the study end-users. Reality is not only described or explained, but comprehended in order to inform its own transformation.

The Ariño case was selected because they were implementing some of the successful actions already identified by the INCLUD-ED consortium (2009). If education is aimed at facilitating the acquisition of those skills required by the Information Society, it is necessary to ensure that everyone participates through the dialogic use of ICT. The selected case is an example of how this process can be achieved. Under the umbrella of the INCLUD-ED research project, this case has served to the purpose of filling the existing gap within the scientific literature a dialogic use of ICT through community participation. The uniqueness of this school makes it to be a better scenario to explore in which ways the community involvement in the use of ICT contribute not only to improve students' academic performance but also to deeply transform rural village isolation.

Since the transformation of the school into a Learning Community, researchers have been following the development of this school, actively participating in the different processes involved. Within this framework, the present case study draws from data collected through three different strategies. First of all, information about the school and the village were collected throughout the life of the project, as an informal monitoring of the INCLUD-ED successful actions implementation. Second, open-

ended in-depth interviews with key players were conducted: the school head-teacher, family members volunteering at the school, students and alumni. A focus group with eight mothers was also organized. Third, researchers have visited the school several times, conducting informal interviews with teachers, students, family members, and neighbours. During these visits, communicative observations were also conducted within and outside the classroom providing rich data on what goes on inside. The collected data was analyzed through the lens of the dialogic learning theoretical framework, as it can be seen in the following sections.

## The case of the Ariño Learning Community

Ariño is a small village located in a mining area in Teruel, in the Autonomous Community of Aragón (Spain). The scarce population living there traditionally experienced isolation problems both physically (transport and road communication systems) as well as virtually, due to limited access to information and communication technology. Thus, the crisis of the industry and the coal extraction left this area with the need to reorient the main economic activities to more appropriate for the existing times. In 2003, the transformation promoted by the school began when the educational community entered a reflective process on the social and economic opportunities in their area. With the objective that no child be excluded from the information society, the decision to transform the school into a learning community was oriented to create new opportunities for everybody.

Learning Communities project consists in implementing those strategies that are based on research evidences about what works in overcoming situations of social and educational exclusion (Díez-Palomar & Flecha, 2010). The project is based on dialogic learning theoretical framework including all the community. The more than a hundred schools in Spain and Latin America that participate in the project have showed to achieve both academic successes for all and better living together, transforming the school and its surrounding context. Through the implementation of the successful actions, the Ariño school became a state and international model in the ICT use.

The transformation process entails the whole community dreaming of the school they wish to have. Once the dreams are identified and prioritized, the management of the school is organised so that these dreams can be achieved. Mixed committees containing teachers, family members and other community representatives are created in order to coordinate their actions and to undertake the priority actions that have been set according to the community dream. In the Ariño school, the main dream that came up was to end with the double isolation and to enter the technological era as a response to the industrial crisis. The entire community got involved not only in the process of obtaining the material resources but also in their implementation. In what follows three strategies of how to promote a dialogic use of ICT are analyzed: community involvement within self-sufficient schools, community involvement beyond the school setting, and community digital literacy.

## Community involvement within self-sufficient classrooms

Since 2003, when its transformation into a Learning Community began, the school managed to obtain resources to develop what are known as self-sufficient classrooms. These are classrooms in which both students and teachers have access to all the information and resources they need online, with no need for any other didactic material. This is possible because in each classroom there is a computer, a video camera and a video projector which serves to screen the information onto a whiteboard. Also, each student has a Tablet PC which is connected to the central computer and to Internet. The Tablet PC allows keyboards and mice to be used instead of pencils, and it works for students as real notebooks and textbooks with increased possibilities as compared to the traditional ones. It was the community who mobilized in order to acquire all these new equipments for the school.

The profound transformation of the traditional classroom generates the possibility for more and better potential learning opportunities. In the present study, it is observed that what makes possible to take advantage of these opportunities is the ways in which these technological tools have been used. The egalitarian dialogue created in the interactions observed in the self - sufficient classrooms have changed the teachers'

roles, students and members of the community as well as the teaching and learning strategies used. The students take an active role in the classroom, volunteers promote this process and the teachers overview the accomplishment of the learning goals. The head-teacher explained in the following way these transformations:

> The same network, the same way of working, is something, it is the way we all learn. Before there was no access to the information, to so much information so rapidly within the classroom, or the workplace, and when not working on the internet the teacher was the one who had the knowledge and who transferred this knowledge to the students. Now it is the students who are capable of discovering and creating all of that knowledge in a relationship within a network which is produced with his or her classmates and with his or her friends in general.

The dialogic use of ICT involve egalitarian interactions take place at these self- sufficient classrooms. Throughout our fieldwork, three different instances were collected: interactive groups, the school blogs and the school TV channel. In all these three spaces, interactions between teachers, volunteers and students take place moving beyond the traditional scheme of teacher-student or peer to peer interaction. Volunteers can be family members or neighbours who are concerned about the children's learning with no need to have any kind of academic credential. The benefits of having more adults in the classroom have been already pointed out in the literature, for instance, in the case of interactive groups (IG). IG involves the organisation of classrooms in small heterogeneous groups of students. Each small group carries out different short activities, each coordinated by one adult who is in charge of promoting interactions among the students.

Parents, mothers and other family and community members facilitate the students' small groups, while children use their Tablet PC's in order to carry out the activities. Maria and Lucia, two mothers who are not very familiar with ICT, volunteer once per week in the natural science class at fourth grade. In one of the observations conducted, the students had several questions regarding the Iberian fauna, so they had to look for the responses in Internet. The mothers neither knew about Iberian

fauna nor more than the students to navigate the net. However, they were promoting students solidarity in finding out the information and sharing the responses and the strategies followed. This type of classroom organisation and the interactions that take place promotes learning being accelerated and also leads to opportunities for children to develop different kinds of interactions with the adults other than the teacher and other classmates. The inclusion of all members of the community, like Maria and Lucia, makes to take into account their cultural intelligence and enriching the learning experience. Besides learning, motivation also increases when working in these groups, as students enjoy more working in interactive groups, as one of the mothers from the school explains in the following quote:

> When you go into the classroom and do the [interactive] groups and they like that. (…) Because for them it is also something different, and on top of that they also learn more things.

Maria and Lucia contributions are equally valued to the one provided by Lourdes, an electronic engineering who also volunteers in the maintenance of ICT. The three of them are equally welcome, thus, the diverse experiences they offer contribute to enrich the learning opportunities of all.

The learning that occurs there is not only connected to the value system but also to the instrumental dimension. Something that was recognized is that the school students end up acquiring better verbal expression competences. Right from the pre-primary stage the boys and girls work on these competences through the participation in these activities in collaboration with the volunteers. One of the mothers described the difference between the activities carried out prior to the inclusion of ICT into the classroom, and how learning is currently acquired:

> Of course for example, if the pre-primary methodology adhered to what the teacher sets out, the child would still be at number 7, 8. Three weeks at number seven. The children become tired of only painting number seven. They have more ability than that. Therefore in this way more of their potential comes out…

Different study participants recognized that the dialogic use of ICT contributed to an acceleration of learning in the school, and the children get better prepared for the transition from primary to secondary school. An alumnus explained her experience going through this process herself:

> I felt I had some advantage in comparison to my classmates, as we know to do more things from animated power point presentations to producing and editing a video. We are very used and familiar to use the computer for everything.

The school head-teacher also acknowledged this fact:

> We base our statements on the grades, on the results they obtain later at high school, right? For example, the first school year which started with the tablet PCs in 4th year of primary in 2003 have now just finished their first baccalaureate year. The school coordinators from the high school always said to us that from that school year onwards the skills that our students had in comparison to the other students in the school were very notable. This is because they are children who know how to search for information, they know how to deal with it, they knew how to do those PowerPoint's, they know how to present them, things that, well, others did not have these skills. In some way this has ensured that they are in a situation which has allowed them to achieve greater success at school. In other words, it translated into their grades.

When teachers, parents, neighbors and students realize that learning is improving a meaning making moment emerges. The fact that the instrumental dimension of learning is reinforced motivates volunteers, teachers and also students to be more convinced about what they are doing, in the way they are doing it.

Two other examples of activities which are carried out in the self-sufficient classrooms with volunteers are the Ariniños blog, and their school television channel. Through these activities, it is the students themselves who, along with adults from the community, provide the contents for them. Teachers, volunteers and students are are engaged in producing joined forecasts, interviews, reports, and other activities

for the television and radio programmes. The contents are linked to the subjects they are studying at the school. Before producing post or video a dialogue is held on what will be done, on the messages which will be created and how they will be presented. Greater digital competence, more creative and critical use of ICT, and instrumental learning are all achieved. Everybody's contribution is welcome from the grandmother who has never lived away from the mines to the young professional who is new in the village. This involvement makes the blog and the TV channel to be followed not only by the students and the families but for everybody from their homes. According to the participants interviewed, most part of them recognized a meaning making process through this collaboration. On the one hand, the students see how teachers, relatives and other neighbors are committed to their learning and collaborate together in doing so. Family and community members feel that their participation is highly appreciated. The school becomes the village nerve center at the educational and the cultural creation levels.

## Community involvement beyond the school setting

When students see how community members and families volunteer at the school, they are not learning about the theory of solidarity, but experiencing it in the practice. Thus, solidarian community involvement is not confined within the school space and hours. It is precisely the flexibility and diversification of participation opportunities what has generated enthusiasm and more people involved. Different types of volunteers in terms of tasks, times, and roles makes possible for a diverse range of people to participate, and for the students to benefit from this amount and diversified interactions, putting into practice the equality of differences principle. The respect for different circumstances makes possible for any person to be able to contribute with her or his time to the shared school project.

Online volunteering is one of the ways to get involved at the school. There are family members without the time to be at the school, but they are able to collaborate from their homes. Online volunteers can be in charge of other tasks related to the school blog, organizing the end of the year trip, looking for new resources or strategies to promote the

school project. A teacher explains an example of how this works in practice:

> Well, we have a goblin called "Adivipupi" who guesses and knows everything and the pre-primary children are very fond of him because he is in contact with them via a weekly email. This goblin suggests things to them and they, well, look for the information that is suggested to them, they write to him and reply to him, and he, well, especially if it is correct, well he is very happy (…) In fact it is a mother who dedicates 10 minutes a week on her computer…to the school from her office and she is constantly in contact with the tutor, the class teacher…this volunteer does not necessarily have to be physically present in the school.

This is a form of participation, in which both the mother and the teacher liaise in order to carry out a learning activity in the classroom, without it being necessary for the mother to be there.

At the beginning, "class representative" were appointed. They were volunteer family members in charge of supporting the dialogic use of ICT by talking with families, explaining the learning, and also recruiting other people to get involved in the project. In a similar way, later on the technological mothers group was created. These were a group of stay home mothers who without any specific degree in ICT provided support to the teachers. For instance, a teacher told us that if they were learning about Pre-history and need to find electronic resources showing the ages evolution, they would ask this group to prepare some supporting materials (e.g. power point presentations, interesting links, videos) on the topic. The technological mothers felt that they were not only getting acquainted with ICT but they were exposed to continuous learning and supporting their children academic progress:

> There was a group of mothers, who we called the "technological mothers." They offered to resolve any resource related problems that any of the new teachers had. In other words, if you needed any resources for your language class, maths class, social studies class, or knowledge of science. You would ask them about it and they would find it for you and if they didn't find it then they would make it for

PowerPoint presentation containing what the teacher had asked for or whatever.

## Community digital literacy

All the different aspects of the dialogic use of ICT identified until now connect with the last principle that is transformation. The transformations found in the learning, knowledge, values, interactions and so on are also transposed to the whole village. Digital literacy is not confined within the teacher and the students but it is offered to the whole community. In less than ten years time, all the neighbours' homes have moved from being isolated to be connected to the net. This figure would not have been that different to other similar villages, but what is found to be distinctive is the way this ICT is used. An important part of it is due to the different strategies that have been identified as part of the community digital literacy both at the school and outside of it.

At the school, the family education program is aimed at facilitating the dialogic use of ICT in the school and the community. Families participate in ICT courses for themselves. But this learning allows them to understand the digital language of their children, be part of it and appreciate the transformation the school.

The head-teacher mentioned one of the fathers from the school, who began by taking part in a digital literacy course in the school, and who, as a result of this, is now in charge of the children's digital video activities which they upload onto a blog. This case is not an isolated one. There are several family members who, having participated in these courses, have then continued their own education through direct participation in their children's learning or in the school management. These are important transformations, if compared to their relationship with the school ten years ago.

The dialogic use of ICT promoted in Ariño has led to the acquisition of critical digital competency that is transposed in every single domain. What is learned at the school by students and family members is also found at the homes' dining rooms. Thus not only the instrumental learning but also the dialogic use of ICT. One of the interviewed mothers explained in which ways her son was bringing home what he learned at the school. The fact that she was attending the community

digital literacy program facilitated her comprehension and interaction with him. She recognized in which ways the families are more able to provide a response to the challenges which arise, as well as help their children in this process. She said:

> For them is much easier, they do not have any problem in using it, navigate online, they use as a tool part of their learning, much better than us. They learn really fast… I do not think they have ever asked me how to do something. It is in the other way round. I asked them about different things or how to look for something, and he finds it very quick. The other day my six year old nephew taught me how to screen an online video. When I was alone, it was stopping all the time, until he came and told me where to press in order to see the entire video. I had no idea about how to do it.

The digital literacy has gone beyond the schools and home walls by extending it throughout the village. Technologies and the dialogical processes have opened up more spaces for the inclusion of the whole community, not just to the children. A clear example that deeply transformed the entire community was the extension of an open wireless coverage in the village, making it possible for students to work from home. This new resources increased students' opportunities to communicate and interact with their peers and other adults. Today, the families dream of their children being able to work and learn in the same way in secondary school. The transformation has not been confined to the village boundaries. The Government of Aragón decided to extend the implementation of the Ariño experience to all the primary schools in the Autonomous Community in Spain.

Thus, the case has also gone international. In 2008, four children from the Ariño school attended the Government Leaders Forum—Europe (GLF) in Berlin, a dynamic discussion platform for government, business and education leaders from across Europe. During this Forum the leaders discussed the role that ICT plays in achieving success in education and the economy. The case of the Ariño was presented at this forum as the school of the future , and thus became a role model at a global level. That same day, the testimony of the children from the Ariño school were included into Bill Gates' speech. Vicente, one of the

three children of Ariño participating in the Bill Gates Forum, showed him how to use the Tablet PC. The children of Ariño showed the world how they mastered and Bill Gates promised to send an email to the school. And he did.

## Final remarks

The Ariño analysis serves to the purpose of adding new knowledge to the existing one on community involvement in ICT. It shows in which ways the implementation of the dialogic use of ICT involving the seven principles--egalitarian dialogue, equality of differences, solidarity, instrumental learning, cultural intelligence, the creation of meaning and transformation—works in a real case scenario. Particularly, the Ariño experience does not only teach us how the dialogic use of ICT can be promoted at a school, a rural village and in the virtual space but also that their implementation has benefits for the students and their families and community. The transformations observed move beyond the classroom reaching homes, streets, regions and even international audiences. The dialogic use of ICT has contributed to make the dream of making the Information Society available for everyone a reality. Through solidarity and dialogue, families' lives in the Ariño have been deeply transformed. They have not only seen how their contributions were welcome at the school but also many of them have become active learners there. Their incorporation into lifelong education processes have led to improve their critical use of technology and capacity to support their children learning. In short, the Ariño school has gone from being a local project, specifically in the province of Teruel, to a more global proposal to overcome inequalities in the field of ICT and to promote successful actions in the improvement in academic performance. As the head-teacher said: "We cannot go backwards; it is unthinkable to retreat in this process which has now been undertaken." They know that there is only the way forward, and that the school and ICT cannot do it be themselves, the entire village is needed.

## Notes

[1] For more information see:
http://www.microsoft.com/spain/responsabilidad_corporativa/vision/4/educacion.mspx.
[2] See: http://www.microsoft.com/presspass/exec/billg/speeches/2008/01-23GLFEurope.mspx

## References

Anastasiades, P.S., Vitalaki, E., & Gertzakis, N. (2008). Collaborative Learning Activities at a Distance via Interactive Videoconferencing in Elementary Schools: Parents' Attitude, *Computers & Education, 50*(4), 1527-1539.

Angus, L., Snyder, I., & Sutherland-Smith, W. (2004). ICT and educational (dis)advantage: Families, computers and contemporary social and educational inequalities. *British Journal of Sociology of Education, 25*(1), 3-18.

Aubert, A., García, C., & Racionero, S. (2009). El aprendizaje dialógico [Dialogic learning]. *Cultura & Educación, 21*(2), 129-139.

Balanskat, A., Blamire, R., & Kefala, S. (2006). *The ICT IMPACT report. A review of studies of ICT impact on schools in Europe*. Brussels: European Schoolnet. European Communities.

Becta. (2006). *The becta review 2006: Evidence on the progress of ICT in education*. Coventry: Becta ICT Research.

Buckingham, D. (2007). *Beyond technology: Children's learning in the age of the digital culture.* Malden: Polity Press.

Castells, M., Freire, P., Flecha, R., Giroux, H. A., Macedo, D., & Willis, P. (1999). *Critical Education in the New Information Age*. Lanham: Rowman & Littlefield.

Díez-Palomar, J. & Flecha, R. (2010). Comunidades de Aprendizaje: un proyecto de transformación social y educativa. *Revista interuniversitaria de formación del profesorado, 67*, 19-30.

Edmunds, J. (2008). Using Alternative Lenses to Examine Effective Teachers' Use of Technology with Low-Performing Students. *Teachers College Record, 110*(1), 195-217

European Commission. (2000). *European report on quality of school education. sixteen quality indicators*. Brussels: EC.

Flecha, R. & Puigvert L. (2004). El uso dialógico de las tecnologías en sociedades dialógicas: una propuesta de democratización de los medios. *Nómadas, 21*, 40-53.

Freire, P. (1997). *Pedagogy of the Heart.* New York: The Continuum.

Gómez, J., Latorre, A., Sánchez, M., & Flecha, R. (2006). *Metodología Comunicativa Crítica.* Barcelona: Hipatia editorial.

Gorz, A. (1983). *Les chemins du paradis.* Paris: Galilée.

Habermas, J. (1981). *The theory of communicative action: Volume 1. reasons and the rationalization of society and volume 2. lifeworld and system: A critique of functionalist reason*. Boston: Beacon.

INCLUD-ED Consortium. (2009). *Actions for success in schools in Europe*. Brussels: European Commission.

INCLUD-ED Project. (2006-2011). *Strategies for inclusion and social cohesion in europe from education*.(6th Framework Programme. Citizens and Governance in a Knowledge-based Society. CIT4-CT-2006-028603. Directorate-General for Research, European Commission.)

IYAC. (2008). *International youth advisory congress: Key recommendations*. Retrieved 05/29, 2010, from http://www.iyac.net/corporate/press.htm

Layard, P. R. G., & Dunn, J. (2009). *A good childhood : Searching for values in a competitive age*. London: Penguin.

Lewin C. & Luckin R. (2010). Technology to support parental engagement in elementary education: Lessons learned from the UK. *Computers & Education, 54,* 749-758.

Livingstone, S. (2003). Children's use of the internet: Reflections on the emerging research agenda. *New Media & Society, 5*(2), 147.

Macedo, D. P., & Steinberg, S. R. (2007). *Media literacy: A reader.* New York: Peter Lang.

McFarlane A., Sakellariou S. (2002). The Role of ICT in Science Education. *Cambridge Journal of Education, 32*(2), 219-232.

Meiring, L., Norman, N. (2005) How can ICT contribute to the learning of foreign languages by pupils with SEN? *Support for Learning, 20*(3), 129-134.

Microsoft. (2007). *The School of the Future*, Retrieved February 25, 2010, from:

http://www.microsoft.com/emea/content/about/flash/futureSchoolVideo.html
Oliver, E., Soler, M., & Flecha, R. (2009). Opening schools to all (women): Efforts to overcome gender violence in Spain. *The British Journal of Sociology of Education, 30*, 207-218.
Pulido, M.A. (2007). Critical Digital Education. In L. Soto, *The praeger handbook of Latino Education in the U.S.* (pp. 92-95). Westport: Praeger Publishers.
Racionero, S., & Valls, R. (2007). Dialogic learning: A communicative approach to teaching an learning. In J. Kincheloe, & R. Horn (Eds.), *The praeger handbook of education and psychology.* vol. 3, (pp. 548-557). Wesport, Connecticut: Greenwood Publishers.
Stevenson, O. (2008). Ubiquitous presence, partial use: The everyday interaction of children and their families with ICT. *Technology, Pedagogy and Education, 17*(2), 115-130.
Weber, M. (1968). *Economy and society; an outline of interpretive sociology.* New York: Bedminster Press.

**Suzanne Gatt** is a Senior Lecturer in the Department of Primary Education at the Faculty of Education, University of Malta, Malta.

**Teresa Sordé** is Ramón y Cajal Researcher for the GEDIME (Study Group on Immigration and Ethnic Minorities) in the Autonomous University of Barcelona, Spain, and professor of sociology at the same university.

**Contact Address:** Direct correspondence to Teresa Sordé at Autonomous University of Barcelona, Departament de Sociologia, Edifici B, 08193 Bellaterra, Spain. E-mail: Teresa.Sorde@uab.cat

IJEP International Journal of Educational Psychology

Hipatia Press
www.hipatiapress.com

Instructions for authors, subscriptions and further details:

http://ijep.hipatiapress.com

# Developing Destinies

Cristrina Petreñas[1]

1) Department of Didactics and Educational Organization, University of Barcelona, Spain.

Date of publication: June, 24th 2012.

To cite this review: Petreñas, C. (2012). Developing Destinies. [Review of the book Developing destinies. A Mayan midwife and town]. *International Journal of Educational Psychology, 1*(2), 175-177. doi:10.4471/ijep.2012.10

To link this review: http://dx.doi.org/10.4471/ijep.2012.10

*IJEP – International Journal of Educational Psychology Vol. 1 No. 2 June 2012 pp.175-177*

# Review. Developing Destinies.

Rogoff, B. (2011). *Developing destinies. A Mayan midwife and town.* New York: Oxford University Press.

" Developing destinies is a piece of the work that Barbara Rogoff initiated more than three decades ago in close collaboration with Chona, a Mayan woman from the San Pedro community (Guatemala) who knew her destiny from the very first day of her life: becoming a midwife for her community.

" In her analysis, Barbara Rogoff combines the life story of Chona, the cultural practices of the community of San Pedro where Chona lives, and Chona's perspective on cultural traditions to elaborate a view of culture as a form of community life, as something dynamic, and as receiving continuous influence from individuals when they engage in community activities. Rogoff illustrates these features with rich examples from Chona's life, her family, and the San Pedro community.

" The background theme throughout the book is the influence that elements of a new society have in the perpetuation or change of traditional cultural practices, such as those developed in San Pedro thirty years ago. In this process, culture becomes dynamic and changes from generation to generation. Another central message derived from this is that in order to understand individuals it is essential to take culture as a starting point, since people "are" in relation to their cultural practices.

Cultural participation in multiple practices or "cultural constellations" are intimately related to how individuals develop and change from generation to generation. To illustrate this, Rogoff shows that today, in biology classes, children in San Pedro learn where babies come from.


ISSN 2014-3591
DOI:10.4471/ijep.2012.10

This is a quite new situation, since forty years ago the majority of children in San Pedro did not receive formal schooling and completely ignored those questions as in the community those issues were taboo. Thus, the cultural practice of formal schooling has transformed individuals and the dynamics of the community at once. Other elements that have contributed to such transformation are the improvement of transportation, Internet access, and the involvement in other occupations besides housework and agriculture.

" In the midst of these changes, one of Chona's worries is the lost of the midwife activity according to the Mayan tradition, given the medicalization and application of Western medicine to traditional midwife practices. Responding to this concern, indeed, one of the main motivations of this book is to leave in writing the ancestral midwife practices that have left a print on the cultural practices of these indigenous communities. Rogoff does this brilliantly through gathering the voice of one of the main characters in this activity, one of the few still remaining Mayan midwifes in San Pedro.

" Chona's life story, through the accomplishment of her destiny, is still an example of how frequently a constellation of practices seems, over time, replacing others, instead of enriching constellations of practices between them. Indeed, throughout the book is evident the confrontation between Mayan tradition and the invasion of the Western culture through power relations that eventually exclude the cultural practices that the inhabitants of San Pedro have experienced for so long. In relation to this, Rogoff claims that still children of the indigenous community of San Pedro have knowledge of the cultural constellations of their community, because there is no difference between the life of adults and the life of children, contrary to what happens in non-indigenous communities. In San Pedro, children are included in all the activities of adults, this is how they learn through their shared destinies between generations, such as the case of Chona's granddaughter and herself, who despite sharing the same destiny -becoming midwifes- the cultural reality of their generation is very different.

The lesson to take home from this thorough book about development in context is that we assume, adopt, transform or reject the cultural practices of our community in the measure in which we participate in them. And when we transform cultural practices, we make them part of

our future development and that of others. This way: *our generation's inventions and patchwork solutions to today's issues become tomorrow's cultural traditions, along with whatever our generation carries forward from people who lived before* (Rogoff, 2011, p.292).

Cristina Petreñas Caballero
*University of Barcelona*
cristinapetrenas@ub.edu