

Aksu-Koç, A., Ögel-Balaban, H. & Alp, İ. E. (2009). Evidentials and source knowledge in Turkish. In S. A. Fitneva & T. Matsui (Eds.), *Evidentiality: A window into language and cognitive development*, *New Directions for Child and Adolescent Development*, 125, 13–28. San Francisco: Jossey-Bass.

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Evidentials and Source Knowledge in Turkish

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Abstract

Recent research has indicated that conceptual development in a specific domain may not be independent of the way it is mapped linguistically. We explore this claim in the semantic domain of evidentiality by considering various sets of data from Turkish-speaking children between one and a half to six years. We present evidence for (1) the appropriate use of grammaticalized markers of direct experience, inference, and linguistic report by age three, (2) the understanding of knowledge source (“theory of knowledge”) around age four, (3) the understanding of linguistic form and knowledge source relationship (“theory of evidentiality”) by age six, and (4) a predictive relationship between the use of the reported speech marker and memory for knowledge source around age four. © Wiley Periodicals, Inc.

Recent research has indicated that conceptual development and functioning in a specific domain is not independent of the way it is mapped linguistically (Astington & Baird, 2005; Bowerman & Levinson, 2001; Gentner & Goldin-Meadow, 2003; Slobin, 1996, 2003). Evidence comes from as diverse domains as space (Choi, McDonough, Bowerman, & Mandler, 1999) and gender marking (Boroditsky, Schmidt, & Phillips, 2003). Another domain where language may play a role in cognition is evidentiality.

Evidentiality comprises notions related to the status of knowledge for the language user. According to some analyses, it is a separate linguistic category (Aikhenvald, 2004), whereas according to others, it is a subcategory of propositional modality that subsumes epistemic and evidential modalities (Palmer, 2001). Epistemic modality reflects the speaker's judgment about the truth value of the proposition, whereas evidentials present the evidence for that judgment. Analyses of typologically different languages that grammaticalize evidentiality show that knowledge source is specified at different levels of detail, ranging from two—firsthand versus non-firsthand—to about five choices—visual, nonvisual sensory, inferred, assumed, and reported (Aikhenvald & Dixon, 2003; Chafe & Nichols, 1986; Johanson & Utas, 2000). The basic opposition is between knowledge obtained through direct versus indirect experience and what is expressed is a discourse perspective with respect to the asserted content on a continuum of “indirectivity” relevant to the mode of entry of the information to the speaker's consciousness. That is, the narrated event “is not stated directly, but by an indirect way: by reference to its reception by a conscious subject” (Johanson, 2000, p. 61).

In this chapter, we first describe how evidentiality marking works in Turkish. Then we discuss briefly the language-cognition interface in relation to evidentiality. Next we summarize the course of acquisition of evidential markers in early child speech. Finally, we present experimental evidence on the relationship between the expression of information source by use of evidential markers and nonlinguistic source monitoring skills. We argue that the early use of evidential markers contributes to children's ability to keep track of the source of their mental representations, thereby facilitating the understanding of and memory for different modes of knowledge acquisition.

Evidentiality in Turkish

Evidentiality is grammaticalized in the tense-aspect-mood system of Turkish, where an obligatory distinction among four modes of knowledge acquisition is observed (Aksu-Koç, 1988). Direct experience is marked with *-DI*, which indicates the speaker's direct access to knowledge about all phases of the asserted event through perception: “*Pencere kırıl-dı*” (“[I saw/know that] the window broke”). The indirect experience marker *-mİş* signifies access to knowledge about the event through inference from physical evidence such

as a resultant state: “*Pencere kırıl-mış*” (“[Through seeing pieces of glass, I infer that] the window is broken.”). Both forms make reference to the past. The reportative marker *-(I)mİş* indicates that the speaker has accessed the information about the situation through the linguistic report of another: “*Pencere kırıl-ıyor-muş*” (“[I am told that] the window is/was being broken”). Finally, the belief marker *-Dir* expresses a logical deduction or inference from one’s existing knowledge about facts or regularities without having any evidence at the moment of the utterance: “*Pencere kırıl-mış-tır*” (“[Based on my knowledge I presume that] the window should be broken” (Aksu-Koç, 1995).

Beyond the basic oppositions described above, there are further functions that the *-mİş* and *-(I)mİş* particles assume by pragmatic extension (Slobin & Aksu, 1982). *-(I)mİş* is the conventionalized form for telling stories, real or fictive, learned about and transmitted through the linguistic medium. It is also the marker of the pretense mode and thus a significant characteristic of children’s symbolic play. Both forms are characteristic of child-directed speech, where they are used to comment on what is judged to be new information for the child. Finally, they figure in expressions of surprise or compliments where the experience, though direct, is contrary to what is expected, and in dream talk, where the experience belongs to a different realm of consciousness. *-Dir* is used to make factive categorical assertions (“Cats are animals”) as well as nonfactive predications as in belief statements based on general well-assimilated knowledge.

In summary, evidentials in Turkish enable the speaker to present the asserted information from a direct or an indirect perspective by reference to its mode of acquisition or source. They function as indicators of the degree to which the speaker’s consciousness has been involved in the experience, marking an opposition between what is new, unexpected, and has no evidential basis in consciousness versus what is expected, familiar, and easily assimilable (Aksu-Koç, 1995; Slobin & Aksu, 1982). Each form may be interpreted to indicate a different degree of speaker certainty only by implication, and it is up to the listener to evaluate the truth value of the assertion in terms of the reliability of the source (see also Fitneva, 2001). In view of this characterization, we agree with Palmer (2001) that evidentiality is an independent modal category on a par with epistemic modality and with Johanson (2000) that source marking serves the presentation of information into discourse from a set of differentiated perspectives.

Evidentiality at the Interface of Linguistic and Conceptual Development

Once children acquire the basic grammatical system of their language around age three, they begin to rely more and more on language to represent knowledge in memory. Nelson (1996) proposes a model that situates language in cognition centrally and aims to capture the progressive developments in

mental representations. First, children form event representations through direct experience in specific situations. Next, parts of these mental representations are transformed into a verbal format to be shared with others in conversational exchanges. At the third level, with advances in grammatical competence, the event representations begin to be transformed into linguistic representations. In discourse, children can interpret the linguistic representations of others and integrate parts of these into their own mental representations. However, they may not yet be able to differentiate knowledge acquired externally through communication from representations based on their own experience. In the last stage, language becomes an “inrepresenting medium,” because it now becomes possible to form novel mental representations on the basis of the linguistic representations of others. The difference from the previous stage is that these linguistic representations can be maintained in long-term semantic memory as opposed to being temporarily available in short-term memory for interpretation. Consequently, children become able to maintain a distinction between their own mental representations and those of others and do not confuse the source of their knowledge. These changes culminate in the development of metarepresentational capacity, which underlies the understanding that the representation of an event by others may differ from their own.

Course of Acquisition

To see how evidentials can be taken as a window to the mind revealing the underlying changes in these representational capacities, let us turn to the sequence of developments observed in their acquisition.

Evidence from Naturalistic Data. The acquisition of evidentials by Turkish children is an early accomplishment (Aksu-Koç, 1988, 1998). Spontaneous speech data from longitudinal studies indicate that the direct experience marker *-DI* emerges as the first verb inflection in children’s speech around age one and a half to two years. It is first used to comment on directly observed events within a limited temporal scope and then extended to talk about all sorts of directly experienced past events. The first occurrence of the *-mİş* inflection is a few months later than *-DI*, in contexts of joint attention with the caregiver where reference is made to states of objects that have just been attended to, for example, looking in a box for a toy: “*Burda-y-mİş*” (“[I realize it] is here” (1;7; this material in parentheses gives the child’s age). The use of the two forms, *-DI* and *-mİş*, initially with these functions limited to direct experience reflects a contrast between a neutral stance on events versus one that indicates access to new information, as well as a contrast between a dynamic versus a stative perspective. The second context where *-mİş* is observed is storytelling frames (“Once upon a time there was [*-mİş*]. . .”), which, however, are empty since the child does not produce a story beyond the frame.

The inferential use of *-mİş* to comment on present states of objects resultant from past processes that have not been witnessed is observed in the first half of the third year, for example, noticing that a toy that was intact has been broken: "*Burası çık-*ıl-mış*" ("This part has come off"; 2;1; an asterisk denotes the ungrammatical addition of the passive morpheme.) These developments indicate that children start differentiating knowledge representations derived from direct experience and knowledge representations constructed by inference from perceived evidence. Since such evidential states that signify past processes that have brought them about are results of nonwitnessed changes, they constitute new information in relation to already existing knowledge or expectations. Hence, the use of *-mİş* in such contexts marks a representational change in the mind of the speaker. Between 2;0 and 3;0 years, utterances marked with *-DIr* are used to express assumptions or predictions based on well-assimilated knowledge about routine or habitual events, for example, in response to mother's question, "Where is your teddy-bear?" the child answers, "*Yatağında-dır*" ("[It should] be in its bed"; 2;1). Around the same time, children start using the reportative marker *-(I)mİş* in conveying information heard from someone to a third party, for example, after mother's statement, "*Saçımı kestireceğim*" ("I will have my hair cut"), the child informs the caregiver, "*Anne saçını kestirecek-miş*" ("[I am told that] Mother is going to have a haircut"; 2;4). This means that children can now deal with knowledge representations that are purely linguistic because they are based on the verbal reports of others.

These developments show that Turkish children encode the perspective of a direct experiencer before the perspective of an indirect experiencer. They furthermore indicate that around age three, children can mark distinctions between well-assimilated and new knowledge and between knowledge based on direct experience, inference from perceived evidence, and linguistic report. Table 2.1 summarizes the developments at the interface of linguistic marking of evidentiality and the underlying knowledge representations.

Evidence from Production and Comprehension Studies. Turkish children's production and comprehension of the evidential forms as indicators of different informational perspectives have also been studied experimentally. In a study by Aksu-Koç (1988), three to six year olds were asked to describe events acted out with toys from the perspective of a direct experiencer who witnessed all its phases, requiring the use of *-DI*, and from the perspective of an indirect experiencer who witnessed just the beginning and the end but not the process in between, requiring the use of the inferential *-mİş*. The results showed that children three to three and a half years old controlled the semantic and pragmatic conditions of the use of *-DI* displaying almost 90 percent correct performance, whereas the same level of performance was achieved for *-mİş* around four years. Successful use of *-(I)mİş* for the reportative function was observed around four to four and a half

Table 2.1 Sequence of Emergence of Evidentiality Markers and the Underlying Knowledge Representations They Indicate

Linguistic Form (Age of Emergence)	Mode of Knowledge Acquisition	Mental Representation or Process	Example
–DI (1;6–2;0)	Direct experience	Representation of perceived reality	“ <i>Burası çık-tı</i> ” (“This came off”)
–mİş (1;6–2;0)	Inference from physical evidence	Representational change or new information	“ <i>Burası çık-muş</i> ” (“This came off [evidently]”)
–(I)mİş (2;0–3;0)	Linguistic report	Linguistic representations	“ <i>Burası çık-ıyor-muş</i> ” (“I am told that this part comes off”)
–Dİr (2;0–3;0)	Deduction from previous experience or knowledge	Generalized event representations (well-assimilated knowledge)	“ <i>Burası çık-muş-tır</i> ” (“This should have come off”)

years (Aksu-Koç, 1988; Aksu-Koç & Alp, 2005; Ögel, 2007). Similarly, children’s use of –Dİr to indicate that what is asserted is a deduction based on previous knowledge but not on evidence available at the moment of speech was not stabilized before four to four and a half years (Aksu-Koç, 1998).

In comprehension studies, children were asked to identify the speakers of utterances marked with –DI versus –mİş and with –DI versus –Dİr in sequenced picture stories representing characters who had a direct or an indirect perspective on events (Aksu-Koç, 1988, 1998; Aksu-Koç & Alıcı, 2000; Aksu-Koç, Aydın, Avcı, Sefer, & Yaşa, 2005). The results confirmed the pattern obtained for production; however, a comparable level of correct performance was achieved about a year later. Success in matching –DI utterances with characters who directly perceived the event reached 70 to 80 percent at four to four and a half years, whereas correct responses matching –mİş or –Dİr utterances with characters who could talk only on the basis of inference from evidence or deduction from previous knowledge reached about 40 to 50 percent by the same age.

In sum, the experimental studies, just like the naturalistic ones, show that the perspective of a direct experiencer has developmental primacy over that of an indirect experiencer. Children perform better on tasks of direct as opposed to indirect experience, and errors are in the form of replacing markers of indirect experience with that of direct experience. However, children’s level of performance in experimental studies appears to lag a year or two behind the level revealed in their spontaneous speech. This, it has been argued, is a function of the tasks used in assessment (Aksu-Koç, 1988, 2009). Production experiments, even if successful in setting up the semantic and

pragmatic conditions for the use of the form under investigation, may not always create the states of consciousness that constitute the appropriate cognitive context for the speaker to use a given form (for example, the psychological distance to the event for the use of inferential *-mİş*). Nevertheless, in production tasks, the child who is asked to describe the situation can rely on his implicit knowledge of the functions of the evidential markers just as in spontaneous speech situations. Comprehension experiments, however, most often pose additional demands on children's working memory, their role-taking ability, and their ability to coordinate temporal and informational perspectives. They require the child to keep in mind the linguistic form of the utterance, determine the point of view it represents as direct versus indirect, find in the pictures the character who has the corresponding perspective, and identify him or her as the speaker. Such extra cognitive load means that the task requires a set of computations that then have to be accessible at a conscious or explicit level for correct performance. Comprehension in natural interaction, however, is not so demanding; the speaker is present in the discourse context, and the child can directly interpret the point of view signified by the evidential marker as that of the speaker's. That is, implicit knowledge is sufficient to guide comprehension as well. Hence, we get inflated ages of performance in experiments that require explicit knowledge compared to spontaneous speech that is guided by implicit knowledge, and hence, the lower level of success in comprehension as opposed to production experiments (Aksu-Koç, 2009; Matsui, Yamamoto, & McCagg, 2006).

Metalinguistic Evidence. The justifications children gave for matching a stimulus utterance with a specific character on the comprehension tasks are revealing about their notions of what kinds of knowledge constitute legitimate grounds for talk, that is, about their theory of evidentiality (Aksu-Koç, 1988). In response to the question, "Why do you think she or he is the speaker of this utterance?" three and four year olds always chose the character who saw the event happen. However, three year olds had no justification to give for their choice, whereas four year olds stated that if somebody had not seen the event take place, they could not talk about it, revealing the belief that to talk about an event, one has to have knowledge acquired through direct perception. Four and a half and five year olds made correct matches between utterances and speakers, recognizing that knowledge inferred from a resultant state also constitutes evidence for talk. However, they did not refer to the linguistic form of utterances as a cue for their choice of speaker. Finally, children five and a half to six years old made correct choices that they justified explicitly by appealing to the evidential inflections *-DI* and *-mİş* as indicators of direct perception and inference. Children at this age could similarly understand that one could talk on the basis of information acquired from others through linguistic report (Aksu-Koç, 1988) and on the basis of general knowledge about habitual, routine events without having any direct experience (Aksu-Koç & Alici, 2000).

It should be noted that these metalinguistic data reflect developments in children's theory of evidentiality that require their awareness of the functions of the different linguistic forms for indicating different sources of knowledge, but not developments in their theory of knowledge, which requires their understanding of different sources of knowledge independent of specific source marking in language. This naturally raises questions about the developmental course of Turkish children's theory of knowledge as speakers of an evidential language, that is, whether it is affected by their early use of the obligatory source markers. With this question in mind, we explored the relationship between the use of evidentials and the development of theory of knowledge, on the one hand, and source memory, on the other.

Effects of Language on Cognition

In acquiring language, children are also acquiring an orientation to experience that is embodied in it. The linguistic representations of experience they form are likely to be construed in accordance with the obligatory distinctions made in that language. In this vein, Slobin (1996, pp. 75–76) states that “experiences are filtered through language into verbalized events.” To capture the nature of the mental processes in this transformation, he proposes the concept of “thinking for speaking,” which involves picking those characteristics of events “that (a) fit some conceptualization of the event, and (b) are readily encodable in the language.” Languages thus direct their speakers to attend to particular aspects of situations for the purposes of communication.

For children acquiring evidential languages, the ability to track different types of knowledge representations that evidential markers map onto is likely to be an earlier development because the linguistic encoding of experience in memory will be in terms of these obligatory source categorizations that will also leave a trace. And if notions that are encodable in language are more readily accessible for retrieval (Brown & Lenneberg, 1954), then it is reasonable to assume that information encoded in a format that automatically specifies its source (for example, as direct experience versus linguistic report) will be accessed in that format. In view of their early use of evidentiality markers in discourse, it can be expected that both awareness of and memory for modes of knowledge acquisition will be facilitated for Turkish children who, in their changing roles as hearers and speakers, will be monitoring unconsciously their own and others' mental representations and be sensitized early to the causal link between knowledge source and corresponding mental states.

Evidential Marking and Source Monitoring. Source monitoring refers to remembering where, when, how, from whom, and through which modalities and means information is acquired (Lindsay, Johnson, & Kwon, 1991). It is an important ability for both cognition and communication as

it is necessary for the formation of autobiographical memory, the evaluation of information accuracy, and the understanding of source reliability (Drumme & Newcombe, 2002; Johnson, Hashtroudi, & Lindsay, 1993; O'Neill & Gopnik, 1991; Perner, 1991; Taylor, Esbensen, & Bennett, 1994).

Source monitoring integrates the abilities to understand the relation between different source modalities (for example, perception, inference, linguistic report, deduction) and knowledge formation, and to identify the source of knowledge held in memory. The awareness of different modes of knowledge acquisition develops through the preschool years. Research shows that three-year-old children first understand that visual access to information leads to knowledge formation for both themselves and others (Pillow, 1989; Pratt & Bryant, 1990). Understanding of linguistic report as a source is achieved around four years, and of logical inference between five and six years, whereas understanding that knowledge can be obtained by inference from some perceptual evidence has ambiguous status and is proposed to appear at an earlier age (Gopnik & Graf, 1988; Roberts, 2000; Sodian & Wimmer, 1987; Wimmer, Hogrefe, & Perner, 1988). Thus, the literature on children's nonlinguistic understanding of knowledge acquisition presents the same sequence of development that we found on the basis of linguistic data.

Given this developmental parallelism, we reasoned that the linguistic encoding of source would positively affect nonlinguistic source-monitoring abilities of Turkish children, since the early competence they show with evidentials in spontaneous speech would result in the encoding of experience into memory in terms of the evidential categories that make source information readily accessible at the time of retrieval. More specifically, we hypothesized that children's ability to use evidentials would predict their abilities to understand knowledge acquisition through different source modalities and to identify the source of knowledge held in memory.

Method. Ögel (2007) tested eighty-seven three to six year olds with a set of language and source-monitoring tasks. The production of the direct experience, inference, and reportative markers was assessed in three language tasks. For the production of *-DI*, children had to describe an event immediately after they watched it happen. For the production of the inferential *-mİs*, they were asked to comment on the state of a set of objects that they had played with after these had been changed by a process that they did not witness. For the reportative use, children were asked to retell a story heard in the direct experience mode to someone else, a task that required a switch to the use of *-(I)mİs*.

One of the source monitoring tasks, the mode of knowledge acquisition task, was adapted from Gopnik and Graf (1988). Children were allowed to discover the contents of six boxes by looking into them (visual perception), guessing from an observable clue (inference/deduction from physical evidence), and being told about it (linguistic report). Their understanding of the mode of knowledge acquisition was tested by asking how

they had found out about the content of each box, immediately after knowledge formation. The second source monitoring task measuring source memory, adapted from Drummey and Newcombe (2002), assessed children's ability to identify the person from whom they acquired information through linguistic report. Children were taught ten novel facts by two source persons, the experimenter and a puppet. A week later, they were asked to remember the facts and their sources with the question, "How do you know?"

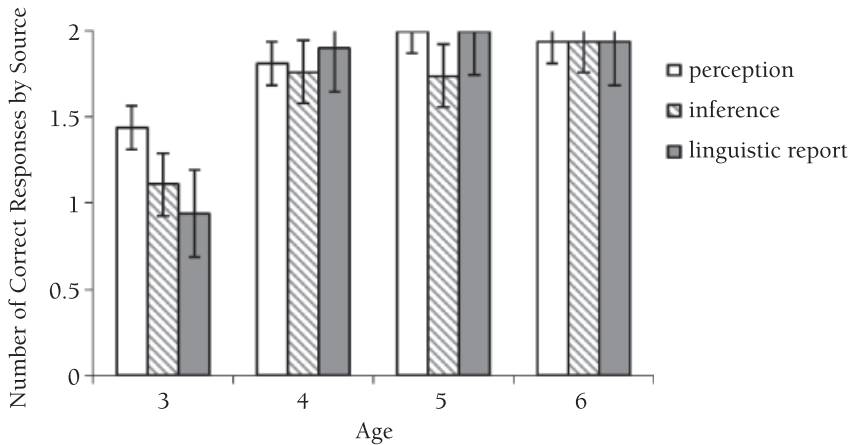
Findings. The results of the language tasks confirmed earlier findings (Aksu-Koç, 1988). Children at all ages used *-DI* to report their direct experiences, whereas the use of *-mIs* for inference increased significantly from 66 percent at three years to 95 percent at six years. Similarly, there was a significant increase in the use of *-(I)mIs* for conveying information acquired through linguistic report from 40 percent at ages three and four to 75 to 80 percent at ages five and six. The production of the inferential *-mIs* was easier than that of the reportative *-(I)mIs* for the three and four year olds, but the performance of the older children did not differ.

On the mode-of-knowledge acquisition task, three year olds were significantly less able than older children in identifying the correct source of knowledge, but older children displayed almost ceiling performance consistent with the results of previous studies (Gopnik & Graf, 1988; O'Neill & Gopnik, 1991; Wooley & Bruell, 1996). As Figure 2.1 shows, for three year olds, the identification of perception as source was significantly easier than the identification of inference, which was easier than that of linguistic report. No significant relationship was found between the use of evidentiality markers and source monitoring ability as measured on this task. However, children's linguistic and nonlinguistic performance showed close parallels: understanding and expression of direct experience developed earlier than the understanding and expression of inference, which preceded that of linguistically acquired information. These findings showing children's understanding of how evidence leads to knowledge thus confirm those reported in the literature regarding children's theory of knowledge (Gopnik & Graf, 1988; Miller, Hardin & Montgomery, 2003; Pratt & Bryant, 1990; Wimmer et al., 1988).

On the source memory task, three year olds were significantly less able than five and six year olds to remember the source person from whom information had been obtained through the linguistic modality. A significant predictive relationship was found between the ability to use the reportative *-(I)mIs* in the linguistic task and the ability to remember the source of information in the nonlinguistic task. The ability to use the reportative marker explained 23 percent of the variance, overriding the effect of age. This finding supports our hypothesis that speaking a language with grammaticalized source markers promotes the development of source memory.

High performance on the reportative task requires the child to differentiate knowledge obtained from another person through the linguistic medium from his own linguistic and nonlinguistic event representations and to mark it as such when transmitting the information to a third party. High

Figure 2.1 Distribution of Correct Responses for Identification of Mode of Knowledge Acquisition, by Type of Source and Age



performance on the source memory task requires the child to have stored in memory the exact source from whom the novel facts were learned, together with the facts themselves. Hence, we believe that the children successful on both tasks were those who could, at the time of acquiring the information (the story in the reportative task, the facts in the source-monitoring experiment), code it with *-(I)mİş* as “new information obtained from linguistic report,” that is, in a linguistic format marking source. This explanation accounts for the difference in the types of errors younger and older children made. Three year olds made a high proportion of extra-experimental errors, confusing sources in the experimental situation (the experimenter and the puppet) and sources from external contexts (self, parents, or teacher), indicating that they could not separate linguistic representations acquired from others from their own mental representations. Older children made intra-experimental errors, correctly remembering as source the context in which knowledge had been acquired through linguistic report even if they erred on the exact identity of the source person. They could keep track of the novel facts learned in the experimental context as information acquired through linguistic report, and thus as distinct from their own mental representations because they could use the reportative format with *-(I)mİş* at the time of encoding (see Table 2.2).

Discussion

The developmental pattern found in Turkish children’s source memory is similar to that found by Drummey and Newcombe (2002) with English-speaking children. An interesting observation, however, is that four-year-old Turkish-speaking children’s correct source identification performance

Table 2.2 Mean Percentage of Correct Source Responses, Intra-Experimental and Extra-Experimental Errors in Remembering the Source Person by Age

	Turkish: Ögel (2007)				English: Drummey and Newcombe (2002)		
	Three Years	Four Years	Five Years	Six Years	Four Years	Six Years	Eight Years
Correct source	27.10	40.30	47.05	46.84	24.1	46.8	40.4
Intra-experimental error	28.37	34.86	40.28	39.03	11.1	39.2	39.4
Extra-experimental error	44.00	22.52	11.26	12.28	59.2	12.7	18.5

(40.3 percent) is superior to that of English-speaking children of the same age (24.1 percent), which is about the same level as Turkish-speaking three year olds (27.3 percent). However, as Table 2.2 shows, this difference disappears when the performance of six year olds in the two languages is considered. In addition, when correct responses are considered together with intra-experimental errors, Turkish-speaking four year olds (75.16 percent) again outperform English-speaking peers (35.2 percent). Conversely, Turkish-speaking children made fewer extra-experimental errors than English-speaking children.

The source memory differences between Turkish- and English-speaking children early in development can be explained in terms of the proposal that Turkish, with its evidential markers, provides a linguistic format that embodies source. This format is put to use at the time of encoding, thereby enhancing correct retrieval. The higher proportion of intra-experimental errors made by Turkish-speaking than English-speaking four year olds suggests that the evidential format signifying acquisition of knowledge through linguistic report is effective in restricting children’s memory about source to knowledge acquired through linguistic exchanges in a specific context. In fact, when correct performance is considered in terms of the exact identity of the source person, it remains below 50 percent for both groups at age six (or even at age eight as the English data show) but increases to 85 to 86 percent when intra-experimental errors are taken into account. This picture supports our view that these responses should be considered as correct for an accurate portrayal of development of source memory if we are interested in children’s ability to remember the mode of acquisition of information rather than the exact source person. In short, we are arguing that the striking difference between the two groups at age four is explained by the advantage that evidentials afford children acquiring Turkish: source markers allow them to keep mental representations arising from different sources distinct from one another. The fact that the gap closes by age six may be due to a number of

factors, such as a change in general memory capacity that supports source memory, the emergence of metarepresentational capacity that enables tracking linguistic and nonlinguistic representations more effectively, and the stabilization of language as an internalized representational medium at the service of cognition and communication. A more informed explanation calls for further research with both children and adults.

The relation between evidentiality marking and source monitoring has also been studied in Korean, where the distinction between direct and indirect experience is grammaticalized. Papafragou, Li, Choi, and Han (2006) found no significant relation between three- and five-year-old children's ability to comprehend the direct experience (*-e*) and the reportative (*-tay*) markers and their ability to understand mode of knowledge acquisition, either for self or other. They also found no difference between Korean- and English-speaking children's source monitoring performance. However, they found a significant positive correlation between production of the reportative and the ability to evaluate knowledge of others acquired through linguistic report. On the basis of these findings, Papafragou et al. argue that the development of source monitoring is independent of language. However, we think that the significant relation between production of the reportative marker and source monitoring skills in Korean parallels the results reported here and provides additional evidence for the relationship between source monitoring and linguistic encoding of source. The lack of a relationship between comprehension of evidentials and source monitoring is also in line with the findings of our comprehension studies and can be explained by the complexities involved in assessing comprehension. Thus, we believe that both the Turkish and the Korean data support our hypothesis that implicit knowledge and early use of the obligatory evidential markers in discourse sensitizes attention to information source before children reach explicit understanding of this domain.

Conclusion

In this chapter, we have explored the interface of language and cognition by tracing developments in the domain of evidentiality. The availability of evidential markers as surface indicators of source allowed us to make inferences about the changing nature of children's early mental representations. We observed that by age three to four, they are marking distinctions between well-assimilated versus new knowledge, directly experienced versus inferred knowledge, and knowledge based on general event representations versus knowledge derived from linguistic representations. This sequence of development provides evidence for increased reliance on language to represent knowledge in memory.

Our findings from the source-monitoring study revealed a relationship between the competent use of the reportative marker to convey information received from others and source memory for information obtained through

the linguistic modality. Children who could externally mark their utterances with the reportative *–(I)mİş* for purposes of communication also appeared to mark them internally for purposes of cognition or, in Brown and Lenneberg's (1954) terms, to describe it to themselves.

The understanding that knowledge arises from different sources is a prerequisite for identifying the origins of mental representations (O'Neill & Gopnik, 1991). It has been claimed that this understanding does not develop until the fourth year, and younger children "have no 'theory' that specifies the epistemic effects of sources of information" despite the fact that different modes of acquisition are at work very early in life and provide knowledge to children (Wimmer et al., 1988, p. 174). The results of our replication of Gopnik and Graf (1988) lend support to this claim that understanding the link between different types of knowledge states and their sources develops gradually around age four. In addition, our metalinguistic data indicate that the construction of a theory of evidentiality is a later development than that of a theory of knowledge, reflecting source understanding at the nonlinguistic level. Theory construction, which requires the explicitation of knowledge, rests on the availability of linguistic representations. As language becomes a representational medium in the service of cognition around age four, it helps make knowledge explicit first in the nonlinguistic domain and then in the linguistic domain.

Linguistic representations support memory and thinking for speaking. Thus, the relations between language and cognition discussed here specifically for evidentials and source monitoring need to be considered in terms of the more general changes that pertain to the whole system of language, bringing about flexible thought and action at a higher level of consciousness.

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