

Acquisition of the Co-operative Principle by Algerian Arabic-Speaking Children

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Abstract

In the realm of language acquisition due attention was given to some linguistic areas like phonology and syntax probably at the expense of others such as pragmatics. The aim of this paper is to explore the age at which Algerian Arabic-speaking preschoolers acquire the maxims of the Cooperative Principle developed by Grice (1975), and the order in which these maxims are acquired. Data were elicited from 36 children between the ages of 3 and 5 years who were required to make acceptability judgment of statements uttered in a puppet video-show to indicate their adherence to or violation of the Cooperative Principle. The results of the study have shown that the Cooperative Principle emerged in preschoolers at the age of 3 years where they were able to identify the Cooperative Principle violation. However, their performance improved with age. The results have also demonstrated that preschoolers acquire the maxim of relevance first, followed by the maxim of quality, the maxim of manner and finally the maxim of quantity.

Keywords: Cooperative principle, Maxims, Maxim violation, Pragmatic competence

1. Introduction

The aim of this study is to examine the age at which the maxims of the Cooperative Principle (CP) are acquired by Algerian Arabic-Speaking preschoolers and the order in which these maxims are acquired. For the purpose of the study, a brief account of the Cooperative Principle is presented below.

The CP, developed by Grice (1975), explicates how effective communication can be achieved in everyday social interactions. The principle is phrased as follows: "Make your contribution such as it is required, at the stage at which it occurs, by the accepted purpose or direction of the talk exchange in which you are engaged" (p.26). The CP is composed of four maxims (Grice 1975:26-27): (1) Maxim of Quantity: Make your contribution as informative as is required (for the current purposes of the exchange); do not make your contribution more informative than is required. (2) Maxim of Quality: Try to make your contribution one that is true; do not say what you believe to be false; do not say that for which you lack adequate evidence. (3) Maxim of Relevance: Be relevant, and (4) Maxim of Manner: Be perspicacious; avoid obscurity of expression; avoid ambiguity; be brief (avoid unnecessary prolixity); be orderly.

Grice (1975:30) asserts that people who obey the CP in their language use will make sure that what they say in a conversation serves potentially the purpose of that conversation. This follows from the assumption that different types of conversations have different requirements. On Grice's conception, speakers and hearers are required to take into consideration not only their language, but also their understanding of the context and each other's goals and intentions (ibid:30). In this context, one can understand that speakers are supposed to observe the CP, and hearers assume that speakers are observing it. Grice suggests that this allows for the possibility of implicatures, which are meanings that are not explicitly conveyed in what is said, but that can nonetheless be inferred (Grice 1975:25). For example, if Salma points out that Ali is not present, and Laila replies that Ali has a cold, then there is an implicature that the cold is the reason, or at least a possible reason, for Ali's absence. Thus, Laila's comment is not considered cooperative unless her point is that Ali's cold is or might be the reason for his absence. Such an implicature is covered specifically by the Maxim of Relevance, which states that hearers should be relevant when producing utterances. This means that they should not change their answer to a question during a conversation or answer a question with another question, for instance. Hence, if the conditions of the maxim are not respected and applied, the speaker is said to be violating the maxim.

Grice (1975: 30) posits that there are several ways in which a participant in a conversation can fail to fulfill the requirements of a maxim. He distinguishes four cases, namely, (1) violation, (2) clash, (3) opting out, and (4) flouting. The first case which is called violation, occurs when the speaker discretely and unintentionally violates the maxim; this may drive him in some cases to delude the hearer. For example, if A is standing by an obviously immobilized car and B approaches him, A says: I am out of petrol and B answers: there is a garage round the corner. Here the answer of B violates the maxim of relevance unless he

thinks it possible that the garage is open and has petrol to sell; hence, B is implicating that the garage is, or may be open for A to go fill his car (Grice, 1975: 32).

The second case is called clash because the speaker might be unable to fulfill a maxim (e.g. first maxim of quantity: be as informative as is required) without violating another maxim (second maxim of quality: have adequate evidence for what you say). For instance, if A and B are planning a holiday in France and they both know that A wants to see his friend C, so A asks B: where does C live? And B answers: somewhere in the South of France. At this level, B's infringement of the maxim of quantity (since he was not as informative as is required) can be interpreted by presuming that B was aware that being more informative would cost him the infringement of the second maxim of quality "Don't say what you lack adequate evidence for." Hence B is implicating that he does not know in which town C lives (ibid:32).

In the third case referred to as opting out, the speaker may opt out from or quit both the maxim and the CP enterprise by indicating plainly his unwillingness to converse in accordance with the maxim's requirements. For example, if A says: did you know that our director is accused of money laundering? And B answers: I don't like the weather these days, it's very volatile; here B is implicating that he refuses to get involved in such a conversation and reject such topics to avoid troubles.

The last case which is flouting holds when the speaker blatantly fails to fulfill the maxim. Some cases of flouting are considered as more interesting than violations of maxims. Irony can be an example of flouting when for instance, saying to a friend who has done something terrible to you: You're a fine friend. The maxim being flouted in this case is the maxim of quality, since the person has blatantly lied about the way she feels about her friend who harmed her. In such cases, the cooperative principle may be considered as an important part of the literal language theory, in which it plays the role of the engine driving the interpretation of the non-literal sentences. This means that, if the listener interprets an utterance (like the example given earlier: You're a fine friend) as untrue and nonsensical, the principle may lead him to search for a further level of meaning -figurative language- which preserves the maxim (of quality in this case). Hence, the listener will interpret rather than reject cases of metaphors such as 'He lit the stage with his talent' (Saeed 1997:195).

Many researchers emphasize the crucial role that pragmatic competence plays in ameliorating one's conversational skills, hence avoiding misunderstandings and communication breakdowns. For instance, Eskritt, Whalen and Lee (2008:2) posit that children need to learn the pragmatics of their language to develop awareness of a large body of implicit information on how to conduct a conversation. This conversational awareness, according to Eskritt et al (ibid), is crucial for children to decode the intended meaning of another speaker and to convey their own messages to others effectively. In the same vein, Clark (2014:105) asserts: "For young children, getting their meaning across also depends on realizing language is conventional, that words contrast in meaning, and that they need to observe Grice's cooperative principle in conversation."

According to Airenti (2017) children's participation in communicative interactions begins at a very early life stage, even if their full pragmatic development is said to be achieved

throughout the school years. Furthermore, Bates (1976) indicates that children are instilled with the imperatives of what is called Grice's maxims as part of the process of socialization and language acquisition. Other researchers like Stiller, Goodman and Frank (2015) postulate that some preschoolers have the ability to work the complicated scalar implicatures, which makes some pragmatic inferences available to them. This assumption drives the interest in when and how the CP emerges in children, generally, and preschoolers, particularly.

To the researchers' knowledge, the acquisition of pragmatics and the CP in particular in Arabic child language, and specifically in Algerian Arabic, is still a virgin soil for research. Thus, this study is expected to be another addition to the repertoire of studies exploring the acquisition of Arabic language in general and Algerian spoken Arabic in particular, and may be the first of its kind to tackle the acquisition of Arabic pragmatics. Furthermore, this study may be viewed as another link in the chain of pragmatic studies focusing on the acquisition of the CP in other languages such as Italian, English and Japanese.

The study at hand seeks answers to the following questions:

- (1) When do Algerian Arabic-speaking children acquire the CP (Grice's maxims)?
- (2) Is there a specific order for the acquisition of the maxims? If so, what is it?

2. Review of Related Literature

It has been noticed that the literature concerned with the acquisition of the CP has displayed different results in relation to the age at which this principle is acquired as well as the order in which its maxims are acquired. Ackerman (1981), for example, explored young children's ability to identify the violation of sequential conversation rules. Children between 5 and 7 years were required to attribute each utterance to one of two female conventional and unconventional speakers. Furthermore, children aged from 6 to 8 years were asked to explain the rule violations. The results of the study showed that the 6 and 7 year-olds were more successful in identifying the violations of sequential conversational rules compared to the 5 year-olds. The findings also demonstrated that the ability to produce correct explanations started at the age of 8 years (among third graders). Ackerman concluded that by the age of 6 or 7 years children can make use of the rules of conversational sequencing to evaluate the need for an inference to the speaker's intent in deliberately violating a rule; however they do not possess the ability to infer that intent until the age of 8 or 9 years.

Conti and Camras (1984) also examined children's understanding of conversational principles. The researchers were concerned chiefly with Grice's first three maxims and the fourth maxim of manner was replaced with 'reasonable request condition'. The subjects were presented with tape recorded short stories and were asked to choose what the researchers called the 'funny or silly' ending, i.e., the violation. The findings demonstrated that 100 percent of the third-graders, 83 percent of the first-graders, and 19 percent only of the preschoolers performed at a level above chance. Conti and Camras concluded that children's understanding of conversational principles improves considerably between preschool and first grade.

Unlike those researchers, Pellegrini et al. (1987) investigated the preschoolers' (between the ages of 2 and 4 years) ability to adhere to Grice's maxims during a conversation with their parents, besides, the parents' reaction to their children's violation. The results have shown that the children's production of violations seem to decrease with age. The 2 year-olds, for instance, produced more violations than those aged 3 and 4 years. This applies to the maxims of quantity and relation in which the children's violations diminished with age. Nonetheless, children aged 2 years and older did not exhibit any violations of the quality and manner maxims. As to the parents' reactions, fathers were usually stricter than mothers in reacting to violations.

Eskritt et al. (2008) explored the acquisition of three Gricean maxims, namely, (1) Quality, (2) Quantity, and (3) Relation. Children between the ages of three and five years were tested to determine the age at which an awareness of these maxims emerges. The subjects were asked to play a guessing game with the help of two puppets: a Gricean follower which provided accurate information and a Gricean flouter which violated one of the maxims. The results showed that the children were initially only successful in the Relation condition. Then, their performance was better in the quantity condition compared to the quality condition. However, the 3 year-olds' performance at the quantity condition weakened later and was never above chance. Thus, the study demonstrated that preschool children are sensitive to the violation of the Relation, Quality, and Quantity maxims at least under some conditions.

Skarakis-Doyle, et al. (2013) examined English-speaking preschoolers' (from 3 years to 5 years) acquisition of the first three maxims, in addition to the maxim of politeness. The children undertook a passive judgment task to identify the maxim violations. The results showed that the subjects consistently identified violations and their performance improved with age. The researchers realized that most 3 year-olds performed at better than chance level on Relevance, Truth, and Politeness (i.e., 62%, 72%, and 65%, respectively) but not on quantity (45%). A similar pattern was found for 4 year-olds; however, a greater percentage of them were accurate on all maxims with an increasing portion to 81 percent, 97 percent, 84 percent, and 68 percent, respectively, for Relevance, Truth, Politeness, and Avoid redundancy. Between 83 percent and 100 percent of 5 year-olds performed at better than chance on all maxims, showing highly accurate and consistent way of responding.

Similarly, Okanda et al. (2015) investigated Japanese-speaking children's understanding of all maxims with special emphasis on the maxim of manner, plus the politeness maxim. The results of their study indicated that sensitivity to violations of Gricean maxims increased with age in that 4 year-olds' understanding of maxims was near chance, 5 year-olds understood some maxims (first maxim of quantity and maxims of quality, relation, and manner), and 6 year-olds and adults understood all maxims. According to Okanda et al. (ibid), preschoolers acquired the maxim of relation first and had the greatest difficulty understanding the maxim of quantity.

3. Methodology

3.1 Participants

The data are collected from 36 Algerian Arabic-speaking children aged 3 to 5 years. The participants are from the city of Saïda, which is located in the west south of Algeria. They belong to middle class families in which one of the parents or both are employees. The subjects comprised 18 boys and 18 girls enrolled at a nursery or kindergarten. They are divided into three age groups, each consisting of 12 children, six boys and six girls. The first age group range is from 3;0 to 3;6, the second from 3;8 to 4;4 and the third 4;6 to 5;2.

3.2 Data Collection Procedure

The study used an Acceptability Judgment Task (AJT) similar to the one developed by Skarakis-Doyle et al. (2013). However different situations were designed for each of the four maxims. Unlike other researchers who used four situations for each maxim, the study reported here used six different situations for each maxim. The situations are as follows: (1) bath time, (2) bed time, (3) eating time, (4) playing time, (5) nursery time, and (6) family visit time. On the basis of these situations taken from the child's daily life, a set of scripts were developed. Actually, the scripts were dialogues in which a mother puppet talks to her children puppets (a boy and a girl) and asks them questions the answers of which might violate or obey the maxim under consideration. Since six different situations were prepared for each maxims, the total number of situations was 24 with 24 scripts. These scripts were transformed into video clips that the subjects watched. The researchers recorded each maxim situation as a separate show/clip, i.e. there were six different shows/clips within each maxim. As a matter of fact, each participant watched twenty-four recorded shows/clips. The answers of the participants were audiotaped. The subjects were not asked which puppet violated the maxim or which one gave the wrong answer, but rather which of the puppets gave the accurate answer. For the purpose of the study, when a subject was able to recognize the accurate answer, this was taken as a prediction that he/she was able to recognize the violation of the target maxim.

3.3 Scoring

This section describes the way in which the elicited responses were scored. It is worth mentioning that each subject was presented with six situations to test each of the four maxims, and that the performance on each situation was scored separately. Each subject was expected to provide one of three responses on each of the 24 situations: (1) completely right, (2) partially right, and (3) completely wrong. Scores or values assigned to these responses were 2, 1 and 0, respectively. For the reader's convenience, below is a brief explanation of how the AJT was scored along with an illustrative example based on the bath time situation under the maxim of quality. The maxim of quality, for the purpose of this study stipulates that one's answer to a question during a conversation should be truthful. The bath time situation, as the name indicates, is a situation in which the mother puppet asks her children questions related to having a bath. The dialogue below is a script of a video in which the mother puppet (Mother Tiger) asks her children puppets (Amir and Amira) a question related to the bath time situation and one of the puppets answers accurately while the other violates the maxim

of quality by lying. The video is presented before the child who is then required to choose which puppet gave the correct response (Amir in this case) and which of them gave the wrong one (Amira in this case). Once the child chooses Amir as the puppet with the correct answer, he is asked why he makes such a choice or why he thinks that Amir rather than Amira is the one with the right answer.

Mother Tiger (to Amir and Amira): You can play in the bathtub; do you have toys?

Amir: Yes, I have a toy [he has a toy]

Amira: No, I don't have a toy [but she has a toy]

In this particular example, the subject's judgment will be considered completely right and scored 2 if he points out that Amir is the one who has given the right response and states that Amir has done so because he said the truth to his mother or because he said that he has a toy.

However, when the participant says that Amir has given the right answer without giving any explanation, his response will be considered partially right, and thus given the value 1. For instance, if the child says that Amir is the one who answered correctly because his toy is bigger or because he is having a bath with his toy, only one part of his answer is right.

The completely wrong answer is given when the child chooses the puppet's response that violates the maxim under consideration, regardless of the explanation provided. For example when the subject judges Amira's answer as right, his response is considered completely wrong and will be scored 0 because Amira has violated the maxim of quality by lying to her mother and saying that she does not have a toy while she does have one.

For the reader's convenience, an illustration taken from the score of the first age group on the first situation is provided below to explain how the percentage of correct responses is obtained:

Regardless of the distinction between the completely right responses (value 2), the partially right responses (value 1), and the completely wrong responses (0); the percentage of correct responses displayed in table 1 is obtained by calculating the performance of the subjects of each age group on each of the six situations then their performance on the whole maxim. First, the performance on each situation is obtained by adding up the scores of the completely right and the partially right responses achieved by the subjects of the age group (12 children), dividing them by 24 (total score of completely correct responses) then multiplying them by 100. The result of this equation is the percentage of correct responses attained by the subjects on the target situation. For example, in the first situation of the quality maxim, if the number of subjects who gave completely right answers (scored 2) is 10 out of 12 and the number of subjects who gave partially right responses (scored 1) is 2 out of 12, then the percentage of correct responses here is $22/24 * 100 = 92$ percent. This procedure is repeated with the six situations of each maxim. Aftermath, the percentage achieved by the subjects of each age group on the maxim as a whole is obtained by adding up the percentages of the six situations then dividing them by 6. Importantly, the same procedure is applied to the four maxims and the resulting percentages are the total percentages of correct responses presented in table 1.

4. Results and Discussion

The results and discussion section starts by giving an account of the tentative scale suggested by the researchers to measure the pragmatic first language development. Aftermath, the results related to the Algerian Arabic-preschoolers acquisition of the CP maxims are presented and discussed. Finally, the order in which the CP maxims are acquired by the preschoolers is debated.

4.1 *The Role of Age in the Acquisition of CP*

The age variable is considered part and parcel of the process of language acquisition. As such, the role of age in monolingual Algerian-Arabic speaking children's acquisition of the CP is explored with a view to determining the age of partial acquisition, acquisition and mastery of the maxims of the CP.

In the absence of a scale measuring the acquisition of pragmatics in first language, the researchers suggested a scale that includes three acquisition stages, namely, (1) partial acquisition, (2) acquisition, and (3) mastery. This scale was inspired by the measurement developed by Amayreh and Dyson (1998) which include three developmental stages, namely, (1) customary production, (2) acquisition stage, and (3) mastery. This measurement was created to describe children's phonological development. Thus, its use and application in the study reported here should be viewed as a contribution to fill in a gap in pragmatics research.

However, unlike phonology, the present study does not deal with production but rather with comprehension through acceptability judgments made by the subjects to show their understanding of the pragmatic meanings associated with the CP. Henceforth, the researchers have adopted these acquisition criteria with some changes that suit the field of pragmatics with partial acquisition as an alternative for customary production, while maintaining the levels of acquisition and mastery.

In this context, partial acquisition is the stage where at least 50% of subjects' acceptability judgments are correct, acquisition is the stage where at least 75% of subjects' acceptability judgments are correct, and mastery is the stage where at least 90% of such responses are correct.

4.2 *Performance of the Subjects on the Four Maxims*

Table 1 presents the means, standard deviations and percentages of accurate judgments assigned to the violations of each maxim across the study groups.

Table 1. Mean, standard deviation and percentage of correct responses in terms of age and situation

Maxims	G1 = 12 (3;0-3;6)			G2 =12 (3;8-4;4)			G3 =12 (4;6-5;2)		
	Mean	SD	%	Mean	SD	%	Mean	SD	%
M.QL = Maxim of Quality	10.42	1.98	87	11.33	0.89	94	11.67	0.89	97
M.QN = Maxim of Quantity	7.58	2.54	63	8.5	3.26	71	8.83	2.98	74
M.R = Maxim of Relation	11	1.48	92	11.5	0.80	96	11.75	0.62	98
M.MN = Maxim of Manner	8.08	2.43	67	9.17	1.75	76	10.83	1.11	90
Total	37.08		77	40.5		84	43.03		90

An examination of Table 1 shows differences in the means, percentages and standard deviations assigned to each maxim across age groups. For example, with regard to the maxim of quality, G1 (M= 10.42, SD= 1.98) gave more correct responses compared to G2 (M= 11.33, SD= 0.89) and G3 (M= 11.67, SD= 0.89). A comparison of the percentages of accuracy for all age groups in all situations also revealed that the performance of G1 who achieved 87% of accuracy differed in a way or another from the performance of G2 (94%) and that of G3 (97%).

Similarly, Table 1 shows that the performance of G1 (M= 7.59, SD= 2.54) on the maxim of quantity was different from the performance of G2 (M= 8.5, SD= 3.26) and that of G3 (M= 8.83, SD= 2.98). The percentages of accurate responses also varied from one age group to another in that G3 achieved the highest accuracy score (74%) followed by G2 (71%), and G1 (63%).

Likewise, a comparison of the subjects' performance on the maxim of relation shows a difference among the three age groups. G3 (M= 11.75, SD= 0.62) had the highest score compared to G2 (M= 11.5, SD= 0.80) and G1 (M= 11, SD= 1.48). The accuracy percentages also indicate that G3 (98%) produced more correct judgments than G2 (96%) and G1 (92%).

A comparison of the performances of the three age groups on the maxim of manner, on the basis of the results displayed in Table 1, reveals that G1 (M= 8.08, SD= 2.43) gave less correct responses in comparison to G2 (M= 9.17, SD= 1.75) and G3 (M= 10.83, SD= 1.11). The percentages representing the accurate responses achieved by the subjects on the manner maxim on all situations, indicate that G3 achieved the highest accuracy score (90%) in comparison to G2 (76%) and G1 (67%).

In light of what has been said earlier, ANOVA was conducted to test whether there were any significant differences in the means of accurate judgments that can be attributed to the main effect (i.e. age).

Table 2. ANOVA of main effect. i.e. age, from data of table 1

Maxims	Ages groups	DF	SS	MS	F	Sig
M.QL	G1(3;0-3;6)	2	10.05	5.03	2.75	0.078
	G2(3;8-4;4)	33	60.25	1.86		
	G3(4;6-5;2)	35	70.31			
M.QN	G1(3;0-3;6)	2	10.06	5.03	0.58	0.565
	G2(3;8-4;4)	33	285.58	8.65		
	G3(4;6-5;2)	35	295.64			
M.R	G1(3;0-3;6)	2	3.50	1.75	1.64	0.210
	G2(3;8-4;4)	33	35.25	1.07		
	G3(4;6-5;2)	35	38.75			
M.MN	G1(3;0-3;6)	2	46.06	23.03	6.77	0.003
	G2(3;8-4;4)	33	112.25	3.40		
	G3(4;6-5;2)	35	158.31			

A look at Table 2 indicates that the performance differences manifested in the quality maxim are statistically insignificant. Likewise, the differences in the means of the three age groups with regard to the maxims of quantity and relation are of no significance; their performances are to a certain extent convergent. However, with regard to the maxim of manner the differences are statistically significant ($p = 0.05$).

The percentages of accuracy for all age groups in all situations were examined to determine the ages of partial acquisition (at least 50% of the responses are correct), acquisition (at least 75% of the responses are correct) and mastery (at least 90% of the responses are correct) of the quality maxim.

In relation to the maxim of quality, the percentages presented in Table 1 demonstrated that G1 (3;0-3;6) who achieved 87% of accuracy was at the stage of acquisition, whereas G2 (3;8-4;4) (94%) and G3 (4;6-5;2) (97%) mastered the maxim. The fact that the eldest group's performance was the best may support the claim that age affects the process of language acquisition.

The results of the study at hand may be in conformity with those of Skarakis-Doyle et al. (2013), who investigated the English-speaking preschoolers' sensitivity to the CP. Skarakis-Doyle et al. (2013) revealed that the 5 and 4 year-olds have shown a higher sensitivity towards the quality maxim compared to the 3 year-olds. However, Eskritt et al. (2008), who examined the preschoolers' (between 3 and 5 years) ability to recognize the violation of Gricean maxims, posited that 3 year-olds never performed above chance with respect to this maxim. Similarly, Ackerman (1981) and Conti and Camaras (1984), who examined the English-speaking preschoolers' understanding of conversational principles, posited that preschoolers' (5 year-olds) performance was significantly poor compared to that of first and second graders (6,7, and 8 year-olds) in connection with detecting the violation of conversational rules.

With regard to the quantity maxim, the accuracy percentages indicated that none of the age groups (G3 74%, G2 71%, and G1 63%) acquired the quantity maxim; G2 and G3 were very close to complete the acquisition stage. This maxim is considered by many researchers (Eskritt et al. 2008; Skarakis-Doyle et al. 2013 and Okanda et al. 2015) the most difficult maxim to be acquired by preschoolers. This difficulty maybe a justification for the poor accuracy scores achieved by the subjects of the current study. Yet, the achieved scores still emphasize the crucial role that age plays in the process of language acquisition in general and pragmatic acquisition, in particular.

Similar to the results of the present study, the results of Skarakis-Doyle et al. (2013) have shown that their subjects' performance was somehow poor in that the 3 year-olds never performed above chance in comparison with the 4 and the 5 year-olds. By the same token, Eskritt et. al (2008) posited that compared to the 4 and 5 year-olds, the 3 year-olds' performance was lower than chance with respect to the quantity maxim.

Nonetheless, an examination of the subjects' accuracy scores achieved on the relation maxim revealed that the three age groups (G1 92%, G2 96%, and G3 98%) mastered the maxim.

This may be an approval of the assumption that the relation maxim is the easiest maxim to be acquired by preschoolers (Eskritt et. al, 2008; Skarakis-Doyle et. al, 2013 and Okanda et. al, 2015).

The results of Skarakis-Doyle et al. (2013), who investigated the English-speaking preschoolers' sensitivity to the CP, have shown that the 3year-olds' performance on the relation maxim was somehow poor compared with that of the 4 year and 5 year-olds. These findings are in agreement with those of Eskritt et al. (2008) posited that 3 year-olds never performed above chance on the relation maxim. Obviously, these results are different from those of the present study where all the subjects mastered the relation maxim.

The accuracy percentages related to the maxim of manner showed that G1 (67%) partially acquired the maxim, G2 (74%) almost acquired it, whereas G3 (90%) mastered the maxim. Apparently, these accuracy scores support the idea that age influences to a great extent the process of pragmatic first language acquisition, in general, and the acquisition of the CP, in particular.

In connection with this maxim, Okanda et. al (2015) who investigated the preschoolers' (between 4 and 6 years) and adults' understanding of Gricean maxims violations, indicated that the children's full understanding of the manner maxim violations showed at the age of 5 years. This is to a certain extent to the results of the study at hand where the 5 year-olds significantly distinguished themselves from the 4 and 3 year-olds.

4.3 The Order of Acquisition

According to the natural order hypothesis developed by Krashen (1987), the acquisition of grammatical structures follows what he calls a 'natural order' which is to a certain extent predictable. This means that for a given language, some grammatical structures tend to be acquired at an early age while others are acquired late. Technically, most of the studies (Ackerman 1981, Conti and Cameras 1984, Eskritt et al. 2008, Skarakis-Doyle et al. 2013, Okanda et al. 2015) investigating the acquisition of the CP either ignored the order in which the maxims are acquired or mentioned the order in passing. However, the present study attempts to determine the order in which Algerian Arabic-speaking preschoolers acquire the CP maxims based on their performance on each maxim.

Table 3 below displays the mean ranks and percentages representing the performance of each age group on each of the four maxims. These mean ranks and percentages may be used to determine the order in which the CP maxims are acquired by the subjects of this study.

Table 3. Mean order of acquisition of the four maxims across the three age groups

Age groups	Maxims							
	M.QL		M.QN		M.R= Mean Rank		M.MN	
	M.R	%	M.R	%	M.R	%	M.R	%
G1(3;0-3;6)	13.92	87	14.96	63	16.00	92	12.88	67
G2(3;8-4;4)	18.67	94	20.04	71	18.33	96	16.46	76
G3 (4;6-5;2)	22.92	97	20.5	74	21.17	98	26.17	90

A comprehensive examination of table 3 indicates that the subjects of G1 (3;0-3;6) acquired the maxim of quality (M.R= 13.92, 87%) and mastered the relation maxim (M.R= 16.00, 92%), however, they partially acquired the quantity (M.R= 14.96, 63%) and manner (M.R= 12.88, 67%) maxims.

Within G2 (3;8-4;4), the subjects' performance on the maxims of quality (M.R= 18.67, 94%) and relation (M.R= 18.33, 96%) remarkably improved in comparison with the maxims of quantity (M.R= 20.04, 71%) and manner (M.R= 16.46, 76%) where the improvement is not tangible.

Another look at table 3 indicates that there was a considerable progress in the performance of G3 (4;6-5;2) on the maxims of quality (M.R= 22.92, 97%), relation (M.R= 21.17, 98%) and manner (M.R= 26.17, 90%) compared to G1 and G2. Nonetheless, the progress in performance did not include the maxim of quantity (M.R= 20.5, 74%).

In light of these results, it can be said that the quality maxim is acquired as early as age 3 years and improves with age to be mastered around age 4 years. As to the quantity maxim, preschoolers seem to have a difficulty acquiring it due to its ambiguity and complexity. Therefore, this maxim may be acquired later during subsequent school years where children reach a higher level of cognitive development.

The relation maxim, however is not only acquired but mastered as early as age three years and its understanding improves with age. With regard to the manner maxim, the acquisition stage begins after the age of three years and a half then it continues to develop to be mastered around four years and a half.

Table 4. Average performance of the three age groups on each maxim

Maxims	Average performance (%)
M.QL	93
M.QN	70
M.R	95
M.MN	78

Table 4 shows the average performance of the three age groups on each of the four maxims, i.e. the accuracy score achieved by all the subjects on each maxim.

On the basis of the comparisons established earlier and the average performance displayed in Table 4, the maxims can be classified as follows with regard to their order of acquisition: (1) the maxim of relevance is acquired first or almost at the same time with (2) the maxim of quality, followed by (3) the maxim of manner and finally the maxim quantity.

The order established by the current study is to a certain extent similar to that obtained by many researchers. For example, Eskritt et al. (2008), who investigated only the first three maxims of the CP; they found that preschoolers acquire these maxims in the following order: maxim of relevance followed by the maxim of quality and finally the maxim of quantity. Skarakis-Doyle et al. (2013) examined the preschoolers' sensitivity to the first three maxims of the CP in addition to the maxim of politeness. They stated that preschoolers start by

acquiring the maxim of relevance followed by the maxim of quality, the maxim of politeness and lastly, the maxim of quantity. Okanda et al. (2015), who explored the acquisition of the four Gricean maxims by children as well as adults, revealed that the maxim of relevance is acquired first, followed by the maxim of quality, then the maxim of manner and finally the maxim of quantity.

5. Conclusions and Recommendations

The results of this study have shown that Algerian Arabic-speaking preschoolers as young as the age of 3 years are sensitive to the violations of Grice's maxims. This implies that the knowledge about the CP in children emerges at a preschool level, mainly, at the age of 3 years and develops with age. Henceforth, the study has emphasized the role that age plays in the acquisition of pragmatics in first language on the basis of the performance of three age groups which varied in relation to the maxim under consideration. The 3year-olds partially acquired the quantity maxim and the manner maxim; however, they acquired the quality maxim and mastered the relation maxim. Notwithstanding, there was no partial acquisition among the 4year-olds who acquired the quantity maxim and the manner maxim and mastered the quality and relation maxims. The 5year-olds mastered almost all maxims, except for the maxim of quantity which remained at the acquisition stage. Generally, the 5 years-olds distinguished themselves, to a certain extent, from the 4year-olds and 3year-olds in the first three maxims, however; a statistically significant difference was evident within the fourth maxim ($p=0.005$). I didn't understand anything from the last sentence.

As previously mentioned, the findings in this study have been based on a small corpus of data. For this reason, the findings cannot be generalized to all Algerian Arabic-speaking preschoolers. Therefore, although beyond the scope of this study, a larger sample consisting of various age groups may be considered for further research. More maxims also can be taken into account such as the maxim of politeness which has been investigated by few researchers like Skarakis-Doyle et al. (2013) and Okanda et al. (2015). Moreover, it is a prerequisite to note that, unlike the cross-sectional design used in the current study, a longitudinal design would account for many other aspects such as the social and cultural factors for each child so as to provide us with an insight into what really shapes the preschooler pragmatic development.

Finally, since the pragmatic discipline of Arabic generally, and Algerian specifically, is a virgin area; researchers are invited to explore the various aspects of this discipline.

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