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Seeking Academic Help: The Case of Lower Secondary Students With Autism Spectrum

Disorder and Their Teachers

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1. Introduction

Academic help seeking refers to learning situations in which students realize they cannot solve a problem by themselves and thus decide to ask for help from a person that they have identified as more expert than they are (Nelson-Le Gall, 1981). Current research on this topic has stemmed from at least three (initially distinct) approaches (Author2, 2013). The first one was initiated by Nelson-Le Gall (1981) who put emphasis on the adaptive role of help seeking in learning. The second one was launched by Zimmerman and Martinez Pons (1986) whose work on self-regulated learning showed how individuals regulate their own cognitive processes in learning situations. The paths of these first two approaches subsequently crossed (Author2 et al., 2008). The third approach was triggered by Winnykamen (1993) who considered student help seeking as a form of tutoring and a particular kind of perspective on Vygotsky's zone of proximal development. Through help seeking, students "express that they feel the necessity for 'guidance', and allow one to infer that they are situated within the limits of the efficacy of the expert's instructions" (Author2, 1998, p. 272).

These three approaches are all necessary to analyze the help-seeking process (Author2, 2013). In fact, help seeking not only is a problem-solving strategy (e.g., Lora et al. 2019; see also Sautter et al., 2011) but also a situation of social interaction between (at least) two individuals, a help-seeker and a helper (Nelson-Le Gall, 1981). Consequently, academic help seeking and help giving can be considered as "two sides of the same coin" (Shwalb & Sukemune, 1998, p. 147). As Author2 et al. (2015, p. 90) suggest, "without the involvement of the helper, the help-seeking process cannot succeed". In other words, it is important to consider "the help-seeking process in its entirety and complexity, including the helper's behavior and characteristics as well as the dynamics of help-seeker/helper interactions" (Author2 et al., 2013, p. 276). Yet, most research on student help seeking has analyzed the help-seeking process only from the help-seeker's perspective (Butler, 2006; Author2 et al.,

2013; Wood, 2009). Within this context, our aim was to analyze both the help-seekers' (i.e., students') and the helpers' (i.e., teachers') behavior in a mainstream lower secondary school context.

We focused specifically on students with autism spectrum disorder (ASD) who experience persistent difficulties in social interaction (American Psychiatric Association [APA], 2013). In fact, we considered that gaining more knowledge about help-seeking behavior in these students as well as their teachers' help-giving behavior would have the potential to contribute to our understanding of the help-seeking process in its entirety and prove useful for designing academic interventions for students with ASD.

1.1 Autism Spectrum Disorder

The two diagnostic criteria of ASD are (1) social communication deficits, and (2) restricted, repetitive and stereotypical behaviors, interests, and activities (APA, 2013). In addition, the *Diagnostic and statistical manual of mental disorders* (APA, 2013) states that deficits in social communication—thus in social interaction—are reflected by deficits in social-emotional reciprocity, nonverbal communicative behaviors used for social interaction, and developing, maintaining, and understanding relationships across multiple contexts.

Moreover, researchers have pointed out that ASD is characterized by socio-pragmatic dysfunctions (e.g., Adams, 2002; Baltaxe, 1977; Plumet & Veneziano, 2015; Tager-Flusberg, 2000). That is, even if some people with ASD have apparently intact structural language skills, difficulties with appropriate social use of language persist. Such difficulties include perceiving and/or using social cues (e.g., Volden, 2002), conforming to conversational rules in everyday life settings (e.g., Ochi et al., 2019), adjusting to the interlocutor's point of view or degree of knowledge to share experiences with others (e.g., Paparella et al., 2011), initiating interactions (e.g., Duffy & Healy, 2011) and question-asking (Doggett et al., 2013) as well as maintaining the conversation topic (e.g., Peters & Thompson, 2015). In sum,

whatever their position on the autism spectrum, individuals with ASD experience difficulties in interacting with others.

1.2 Student Help Seeking

1.2.1 Generalities on help-seeking research. Academic help seeking is typically understood as a multi-step process, including determining whether there is a problem and whether help is needed (or wanted), deciding whether to seek help, what type of help to seek and whom to turn to, soliciting and obtaining help from the helper, and processing the received help (Karabenick & Newman, 2009; Nelson-Le Gall, 1981). In this study, we were interested in students' actual help-seeking behavior addressed to the teacher in class, thereby focusing on the steps that were observable: the type of help sought, and the means used to solicit help.

Regarding the type of help sought, Nelson-Le Gall (1981) distinguished two major functions of help seeking: instrumental (i.e., asking for explanations to progress in solving a task by oneself) and executive (i.e., asking for ready-made answers in order to have the task solved by someone else). Author2 (1998) subsequently introduced confirmation-asking, which corresponds to students' requests aimed at checking an answer or the comprehension of instructions; such requests may reflect a lack of self-confidence (Author2 et al., 2008).

As for soliciting help, students may employ both verbal and nonverbal means. Verbal means include directly asking questions or making statements about one's competence, and nonverbal means correspond to using physical expressions of confusion or exasperation, or attempting to establish eye contact (Nelson-Le Gall, 1981). To our knowledge, very few (if any) research has focused on this aspect of the help-seeking process since Nelson-Le Gall's work.

1.2.2 Help seeking in students with ASD. Until now, (scarce) research on help seeking in students with ASD has focused on procedures used by educators to teach

adolescents with ASD to seek help in non-academic contexts (Dotto-Fojut et al., 2011; Taylor et al., 2004). Taylor et al. (2004) investigated strategies designed to teach adolescents with ASD how to seek assistance when lost in community settings. They demonstrated how three adolescents successfully handed a communication card indicating that they were lost to a community member. Dotto-Fojut et al. (2011) used social scripts in teaching adolescents with ASD how to describe a problem and seek assistance during vocational tasks. They showed that the introduction of a three-step teaching procedure (i.e., providing graduated guidance, using, and fading social scripts) allowed four adolescents with ASD to approach the experimenter, describe a work-related problem, and request assistance in a simulated vocational setting.

To our knowledge, the study by Author1 and Author2 (2017a) using semi-structured interviews is the only reference concerning academic help seeking in students with ASD¹. Seventeen general and resource class teachers² and 11 lower secondary school students with ASD were interviewed, and contrary to the hypothesis based on existing literature, the findings indicated that students with ASD seemed to seek help in class. Teachers' interviews revealed that the majority of their students with ASD sought help at least occasionally in class; only two teachers out of the 17 declared that the students with ASD³ attending their class did not seek help at all. The majority of the students with ASD themselves (i.e., 9 students out of 11) declared during the structured interviews⁴ that when they did not succeed in finishing a task by themselves in resource class, they asked for help; five students out of

¹ Both the paper published by Author1 and Author2 (2017a) and the present paper were part of a larger PhD research project conducted with the same participants. Teachers and students were interviewed after the in-classroom video recordings; the time delay between the end of the video recordings and the interview ranged from one day to two weeks, depending on the interviewees' availability.

² In France, general class teachers teach students with or without disabilities in a general classroom setting (approximate group size 25-30 students). Resource class teachers are special education teachers who teach students with disabilities in a specific (resource) classroom setting within mainstream school context (approximate group size 10-12 students); in addition, they help general class teachers to include students with disabilities in general education classes.

³ Each teacher had at least one adolescent with ASD participating in the study in their class at the time of the data collection. During the interviews, teachers were invited to talk about one student with ASD at a time.

⁴ Students could choose from a list of predetermined answers and/or add a personal answer.

eleven declared seeking help in general class. As for the type of help sought, all the resource class teachers, and half of the general class teachers alluded to instrumental types of requests, while students with ASD themselves exclusively alluded to confirmation-asking; four resource class teachers out of the seven also reported confirmation-asking from these students. A majority of the resource class teachers, and some general class teachers further reported that when students with ASD sought help from them, they typically did not use a conventional, or socially well-established way (e.g., raising their hand) to address their requests to them; they rather formulated their requests out loud (thus interrupting the teacher), stopped working, avoided eye contact with the teacher, and/or refused to complete the task. However, half of the students with ASD themselves declared raising their hand to ask for help from the teacher.

In sum, the study by Author1 and Author2 (2017a) provided new insights on academic help seeking in students with ASD as reported by students themselves and their teachers. However, previous research has shown that self-reports do not necessarily provide a thorough picture of students' actual behavior in learning situations (Winne & Jamieson-Noel, 2002). Huet et al. (2013) even demonstrated that students' self-reported help seeking did not correlate highly with their actual help-seeking behavior. Therefore, it seemed necessary to seek to complement the first findings through an analysis of video recordings in order to reach a more accurate picture of students' in-classroom help-seeking behavior.

1.3 Teacher Help Giving

1.3.1 Generalities on help-giving research. Factors related to teacher help giving have been much less reported in the literature because “research on help seeking in academic contexts has focused almost exclusively on help seekers—students—and has paid little attention to the teachers to whom they can turn for help” (Butler, 2006, p. 34). That might at least in part be explained by the fact that the teacher's—or the helper's—role is, in general, only implicitly present in the models of the help-seeking process (e.g., Nelson-Le Gall, 1981;

Karabenick & Newman, 2009). For example, in the first model of help-seeking (Nelson-Le Gall, 1981), the last two steps included the “employment of strategies to elicit help” (p. 236) and “reactions to help-seeking attempt(s)” (p. 239). In addition, “although there is a long history of research on helping behavior among adults, much has focused on contexts very different from the classroom” (Butler, 2006, p. 34).

Yet, in a related domain, extensive literature exists on adults’ unsolicited or spontaneous help giving, i.e., situations in which the adult (e.g., teacher), based on various cues (e.g., student experiencing difficulty), takes the initiative to provide help. The seminal work by Wood et al. (1976) on scaffolding and tutoring is one of the most famous examples of research on unsolicited or spontaneous help giving and has aroused a lot of interest (for a review, see van de Pol et al., 2010).

1.3.2 Help giving to students with ASD. Previous research (e.g., Crosland & Dunlap, 2012; Harrower & Dunlap, 2001) has pointed out strategies and methods aimed at improving learning in students with ASD in the classroom and/or in other contexts. They include using antecedent procedures (e.g., priming, prompt delivery, and picture scheduling) in order to facilitate students’ understanding of what is expected from them in class; teaching of self-management strategies, consisting of helping students with ASD to discriminate between appropriate and inappropriate behaviors as well as to evaluate, monitor, and reinforce their own behavior, when necessary (e.g., using social scripts); and peer-mediated interventions (i.e., peer tutoring, cooperative learning) to support the academic performance and develop these students’ autonomy. From the present study’s perspective, one of the main limits of this approach is that these strategies were tested within the framework of a specific program thus did not provide information about the actual course of help giving as it takes place in everyday classroom situations.

To our knowledge, Author1 and Author2's (2017a) study is the only reference concerning teachers' academic help giving addressed to students with ASD in the class. The results revealed that a majority of the general and resource class teachers reported checking the students' written work, managing the students' attention, and repeating and/or reformulating information in order to help them learn. Even though this study provided new insights on teacher help giving, it did not distinguish teachers' reactions to students' help-seeking attempts from their unsolicited or spontaneous help giving, i.e., situations in which teachers, based on various cues, take the initiative of spontaneously helping the students. Analysis of in-classroom video data, allowing us to focus specifically on help provided by teachers in response to students' help seeking, seemed necessary to reach a more comprehensive understanding of the help-seeking process.

1.4 Research Questions and Hypotheses

Huet et al. (2013) have demonstrated that students' self-reported help seeking does not correlate highly with their actual help-seeking behavior. Yet, existing research on help seeking in students with ASD (Author1 & Author2, 2017a) is based on self-reports only. In addition, no research has analyzed help provided by teachers in response to these students' help seeking. Furthermore, considering the widely adopted inclusive education principles (UNESCO, 1994), it is surprising how few studies have specifically analyzed everyday classroom situations in a mainstream context from the viewpoint of students with ASD (e.g., Humphrey & Lewis, 2008; Loyd, 2015). Within this context, our aim was to complement⁵ previous results obtained using interview data (Author1 & Author2, 2017a), by analyzing video-recorded data on the same students' (i.e., lower secondary students with ASD) actual help-seeking behavior as well as their teachers' subsequent actual help-giving behavior, in

⁵ We considered the two methods (interviews and observation) as complementary in the sense of methodological triangulation (Flick, 2004), rather than as being in opposition or as one disproving the other.

everyday classroom situations⁶ in both general and resource class settings within a mainstream lower secondary school. More precisely, this study aimed at answering the following questions:

- (1) *Do lower secondary students with ASD spontaneously seek help from their teachers in class?* Two competing hypotheses seem plausible. The first, based on previous analyses concerning the same students' self-reported help seeking (Author1 & Author2, 2017a), suggests that they would seek help in class, yet probably somewhat more frequently in resource class than in general class. The second hypothesis, based on extant literature on ASD (e.g., Plumet, 2014) as well as the diagnostic criteria showing that people with ASD have difficulties in initiating contact with others (APA, 2013), rather suggests that students with ASD would seek only little (if any) help from their teachers in class.
- (2) *Do the observed help-seeking behaviors confirm the findings of the interview data (Author1 & Author2, 2017a)?* Huet et al. (2013) have shown that students' self-reported help seeking does not correlate highly with their actual help-seeking behavior. We therefore expected that the results obtained through the observation of students' actual help-seeking behavior would not be consistent with those obtained using interview data.
- (3) *What type of help do students with ASD seek from their teachers?* Based on previous analyses concerning the same participants (Author1 & Author2, 2017a), we formulated the hypothesis that students with ASD would mainly opt for instrumental help seeking and/or confirmation-asking, in both contexts (i.e., general and resource class). At the same time, in an ecologically valid context (i.e., the classroom), we might reasonably expect to observe help-seeking behaviors that

⁶ By everyday classroom situations, we mean real-world conditions without any external intervention (e.g., students were not encouraged to seek help, and teachers were not encouraged to provide help) or specific program (e.g., teachers were not instructed to implement new methods or strategies).

do not fit comfortably into these two “traditional” help-seeking categories given:

(a) that these categories were predominantly informed by the self-reports of students (with and without ASD) and studies conducted outside of the classroom context (see Karabenick, 2011); (b) the socio-behavioral differences observed in young people with ASD (Plumet, 2014).

(4) *What means do students with ASD use to solicit help? Do the means used vary as function of the type of help sought?* According to most resource class teachers and some general class teachers interviewed by Author1 and Author2 (2017a), students with ASD manifest their need for help by speaking out loud (i.e., verbal means) and/or stopping their work (i.e., nonverbal means); half of the students with ASD themselves declared raising their hand (i.e., nonverbal means) when soliciting help from their teacher in class. These findings are consistent with the literature on help seeking (Nelson-Le Gall, 1981), which suggests students use both verbal and nonverbal means to solicit help in class. We therefore expected to observe both verbal and nonverbal means to solicit help. Given the lack of results in the help-seeking literature on an association between the means of help seeking and the type of help sought, this research question was exploratory in nature.

(5) *What type of help do teachers provide the students with ASD with? Does the type of help sought influence the type of help giving?* For example, is instrumental help seeking systematically followed by an explanation, and confirmation-asking by a reassuring comment? Given the lack of existing results on the topic, this research question was exploratory in nature.

In France, students with ASD are typically included in general education classrooms for artistic subjects and/or physical education, considered as low-stakes subjects. However, in order to observe their help-seeking behavior, it seemed important to focus on situations with

high stakes (cf. Author2 et al., 2015). Therefore, we initially intended to focus solely on mathematics given that Nelson-Le Gall and Glor-Scheib (1985) had shown it to be among the disciplines that trigger the most help seeking in class. However, due to the lack of participants (we managed to recruit only two students with ASD who were included in general education classroom for mathematics), we extended our choice to other subjects considered as scientific in France (i.e., biology, physics, technology).

2. Method

2.1 Participants

To conduct our study, we solicited an agreement from the representative of the French Ministry of Education in all of the eight departments of the Île-de-France region. Four of them gave us their consent (the others refused or did not respond). Seventy-five mainstream lower secondary schools with a resource class for students with disabilities were contacted, and seven of them accepted to participate (the others refused, did not respond or informed us that they did not have students meeting our criteria). The following criteria were used to recruit the students: (a) having a diagnosis of ASD with no associated learning disability or other major impairment (e.g., hearing or visual impairment), (b) being 12 to 16 years old, and (c) attending scientific lessons in both resource and general class in one of the seven schools. Thirteen students met the criteria, but two of them did not participate (one student refused to participate, and the parents of one student did not give their consent). The sample thus consisted of 11 French lower secondary (i.e., 6th to 9th grade)⁷ students with ASD (10 boys), ranging in age from 12 years 10 months to 16 years 1 month ($M = 14.8$, $SD = 13.3$). They had received an ASD diagnosis from a child psychiatrist affiliated to a French institution (hospital or medico-social service) and obtained official recognition as a students with a disabilities

⁷ In France, compulsory education begins at the age of 6 and comprises 5 years of elementary school (i.e., grades 1 through 5) and 4 years of lower secondary school (i.e., grades 6 through 9).

from their department's disability office⁸. Their level of academic achievement was assessed by the general class teachers, revealing that six students performed at an average level as compared to the other general class students, and five students performed below the average level of their general class (Author1 & Author2, 2017b). Their parents completed the Vineland Adaptive Behavior Scales (VABS II; Sparrow et al., 2015) and the results showed that 10 out of the 11 students had low standard composite scores for adaptive behavior; one student had a moderately low standard composite score (Author1 & Author2, 2017b).

For teachers, the recruiting criteria were (a) being a general or resource class teacher in one of the seven secondary schools, and (b) teaching a scientific subject (i.e., biology, mathematics, physics, technology) to a group involving at least one of the recruited students with ASD. Seventeen teachers—ten general class teachers, seven resource class teachers—met the criteria and took part in this study.

2.2 Procedure

Parents and professionals gave their active consent for their own participation, and parents gave consent for their child's participation in the study; the students themselves also orally gave their agreement⁹. The classroom situations were video-recorded using a fixed camera dedicated to the student with ASD who was wearing a wireless microphone and his/her immediate environment (peer and/or teaching assistant, if any), as well as a mobile camera with a wide angle, following the teacher. Each student was filmed six times, i.e., during three scientific lessons (average length 55 minutes) in each context (general and resource class). For the needs of the analyses, the two video files of each recorded scene were synchronized using the ELAN software (version 5.2).

⁸ Maison départementale des personnes handicapées.

⁹ In accordance with the French legislation data protection concerning minors with disabilities in force during the data collection (see French law n° 78-17 dated 6 January 1978 relating to data processing, files, and freedoms), we informed the students, their parents, and the academic institutions (academic heads, inspectors, head teachers, teachers) of the objectives of our research. As requested by the procedure, our university's legal correspondent entered our research in her records.

2.3 Coding

In the raw video-recorded data (i.e., a total of about 60 hours of film in general and resource class), we identified all the student-teacher interactions.

Student help seeking. Among all the interactions, we selected the help-seeking initiatives students with ASD addressed to their teachers. The verbal and nonverbal aspects of the selected help-seeking data were transcribed using the ELAN software (for rules used when transcribing nonverbal aspects, see Filliettaz, 2018) and a content analysis was conducted. Two aspects of student help seeking were coded, namely the type of help sought and the means used to solicit help. The coding schemes presented below were tested and refined in the course of six video-watching sessions (three sessions including the authors only, and three sessions including the first author and a fellow-researcher working on a related research topic).

Type of help sought. A coding scheme for the type of help sought (cf. upper part of Table 1) was elaborated, based on existing literature (and categories) on student help seeking (e.g., Nelson-Le Gall, 1981; Author2, 1998; Author2 et al., 2011) and on children's requests (Bernicot, 1991; Ervin-Tripp, 1977) as well as on the answers provided by the students with ASD themselves during the structured interviews (Author1 & Author2, 2017a).

Insert Table 1 about here

About 10% of the raw data (i.e., about six hours of film, different from data used during the above-mentioned video-watching sessions) were submitted to an inter-rater reliability (IRR) test with the first author and the fellow-researcher who independently assessed the same randomly-selected cases. The IRR—92.5% for the identification of help-seeking occurrences, 85% for the contents of the identified help-seeking occurrences—

correspond to the proportion of agreed codings¹⁰ over the total number of codings.

Disagreements were discussed until a consensus was reached; they did not result in changes to the coding schemes.

Means used to solicit help. A coding scheme for the means used to solicit help was elaborated, inspired by existing educational research on social interactions which considers verbal but also nonverbal dimensions of students' activity such as their movements in space, actions involving the manipulation of objects or co-verbal gestures (Filliettaz, 2018). Based on Nelson-Le Gall's (1981) work, the coding scheme included verbal means (i.e., directly asking questions or making statements about one's competence) and the following nonverbal means: (1) raising one's hand; (2) expressing confusion (e.g., having a very tense face), exasperation (e.g., sighing loudly) or tiredness (e.g., yawning); and (3) attempting to establish eye (i.e., insistently following the teacher's gaze) or physical (e.g., touching the teacher's arm) contact with the teacher. The means were not considered as mutually exclusive, i.e., students could use several means during a single help-seeking episode (e.g., raise their hand and ask a question). The IRR rate—87.5%—was obtained using the same procedure as above by the two coders who independently assessed the same randomly-selected cases (approximately 10% of the data); agreed codings corresponded to cases in which the same category was chosen by the two coders.

Teacher help giving. In order to analyze the type of help provided by teachers in response to students' help seeking, we transcribed the verbal and nonverbal aspects of their help giving and conducted a content analysis aiming to distinguish the different help-giving categories (see lower part of Table 1). We were inspired by research on (1) teacher help giving and scaffolding in the classroom (e.g., Rojas-Drummond et al., 2013; van de Pol et al., 2010; Wood et al., 1976) and (2) specific strategies aimed at helping students with ASD to

¹⁰ Cases in which the two coders considered that verbal or nonverbal help seeking occurred (cf. identification of help-seeking occurrences), or cases in which the same category was chosen by the two coders (cf. analysis of the contents of the identified help-seeking occurrences).

learn (Crosland & Dunlap, 2012; Harrower & Dunlap, 2001). The IRR rate—86%—was obtained using the same procedure as above; agreed codings corresponded to cases in which the same category was chosen by the two coders.

For examples of help-seeking/help-giving exchanges and their codings, see Table 2.

Insert Table 2 about here

3. Results

3.1 Research Question 1

Nearly all students with ASD (i.e., 10 out of 11) actually sought help from their teacher in general and/or resource class (Table 3). This finding is in line with the first part of the first hypothesis which stated that students with ASD would seek help in class. As for differences in observed help-seeking frequencies between the two contexts (Table 3), paired samples Wilcoxon test yielded a non-significant result between general class ($Mdn = 4$) and resource class ($Mdn = 7$), $z = -1.19$, $p = .234$; the number of positive ranks was 6, the number of negative ranks 3, and the number of ties 2. In other words, we cannot conclude on the second part of the first hypothesis according to which students with ASD would seek help more frequently in resource class than in general class.

The results further showed important individual differences which were stable across the contexts. In fact, Table 3 reveals that some students sought only little help, i.e., less than 10 times during the three lessons in each context (top six students) and some students sought a lot of help, i.e., 10 times or more in each context (bottom four students).

Insert Table 3 about here

3.2 Research Question 2

In general class, there are Yes and No's for students who showed little help seeking (top six students), but also for students who showed a lot of help seeking (bottom four students; Table 3). In resource class, only two students reported that they did not seek help, but these were actually students who showed a lot of help seeking in this context. Thus, in line with our hypothesis, there seems to be no relation between the frequency of observed behavior and self-reported help seeking.

3.3 Research Question 3

Concerning general class, Table 4 reveals that instrumental help seeking and confirmation-asking represented 37% of all observed help seeking; in the remaining cases, student help seeking fell into three categories: ambiguous (33%), organizational (29%), and executive (1%) help seeking. A paired samples Wilcoxon test between “traditional” help seeking (i.e., the sum of instrumental help seeking and confirmation-asking; $Mdn = 2$) and other categories of help-seeking (i.e., the sum of executive, organizational, and ambiguous help seeking; $Mdn = 3$) yielded a non-significant result; $z = -1.48$, $p = .138$; the number of positive ranks was 6, the number of negative ranks 3, and the number of ties 2.

As far as resource class is concerned, instrumental help seeking and confirmation-asking corresponded to 50.2% of all observed help seeking (Table 4). Three other help-seeking categories were observed: ambiguous (30.4%), organizational (18.7%), and executive (0.5%) help seeking. A paired samples Wilcoxon test between “traditional” help seeking ($Mdn = 3$) and other categories of help seeking ($Mdn = 5$) yielded a non-significant result; $z = -0.28$, $p = .778$; the number of positive ranks was 4, the number of negative ranks 4, and the number of ties 3.

These findings do not allow us to conclude in favor of the first hypothesis, according to which students with ASD would mainly opt for instrumental help seeking and/or

confirmation-asking, in both contexts. Instead, they are line with our second hypothesis which stated that in an ecologically valid context, we might observe help-seeking behaviors that do not fit into the two “traditional” help-seeking categories.

Finally, it is interesting to note that individual differences were important and that they were not stable across the contexts. In particular, two students (6, 10) stood out from the others: in general class, “traditional” help seeking represented more than 50% of their help seeking ($3+2/9 = 55.6\%$ and $3+5/11 = 72.7\%$, respectively), whereas in resource class, it represented barely one third of their help seeking ($2+0/7 = 28.6\%$ and $3+5/25 = 32\%$, respectively; Table 4).

Insert Table 4 about here

3.4 Research Question 4

All the students who sought help ($n = 10$) used verbal means, i.e., directly asking a question (66% in general class, 69.1% in resource class) or making a statement about one’s competence (34% in general class, 30.9% in resource class; Table 5). We did not identify any exclusively nonverbal help-seeking episodes. This finding is not in line with our hypothesis according to which students would use both verbal and nonverbal means to solicit help.

Insert Table 5 about here

However, in some cases (i.e., $33/100^{11} = 33\%$ in general class, $30/181^{11} = 16.6\%$ in resource class), students used complementary nonverbal but also verbal means prior to, or concurrently with the verbal solicitation of help. These included (1) raising one’s hand, (2)

¹¹ Total number of observed help seeking (Table 3).

expressing confusion, exasperation, or tiredness, (3) establishing eye or physical contact, and (4) calling teacher by his/her name (Table 6). By doing so, they seemed to attempt to draw the teacher's attention.

Concerning a possible association between help-seeking means and categories, Table 6 reveals that ambiguous help seeking was systematically formulated by making a statement in both contexts, whereas confirmation-asking, organizational and instrumental help seeking were almost systematically formulated through a question, in both general and resource class. Table 6 further reveals that in resource class, students most frequently (60%) used complementary nonverbal or verbal means when seeking help in an ambiguous way, whereas in general class, they were rather evenly observed across instrumental (30.3%), organizational (39.4%), and ambiguous help seeking (27.3%). Students used hardly any complementary nonverbal or verbal means during confirmation-asking and executive help seeking, in both contexts (i.e., 0 to 1 occurrences in all for the 11 students). These results are exploratory only.

Insert Table 6 about here

3.5 Research Question 5

Table 7 shows that nearly three quarters of all teacher help giving fell into three categories, in both general and resource class: providing direct feedback (29.3% and 30.9%, respectively), instructing (20.0% and 20.7%), and explaining (25.0% and 19.4%). The bottom five categories (i.e., marking critical features, hints, modelling, mobilizing attention, and establishing physical contact) were only rarely observed (i.e., each of them represented 0 to 3.6% of all help-giving episodes).

Concerning the possible association of student help seeking with teacher help giving, the results revealed that instrumental help seeking was most frequently followed by an

explanation in both general and resource class ($8/24 = 33\%$ and $17/44 = 38.6\%$, respectively; Table 7). Teachers most frequently answered confirmation-asking in both general and resource class by providing students with direct feedback ($13/34 = 38.2\%$ and $23/67 = 34.3\%$, respectively). The most frequent type of help giving in response to ambiguous help seeking was also direct feedback from the teacher, in both contexts ($16/50 = 32\%$ and $25/67 = 37.3\%$, respectively). Finally, organizational help seeking was most frequently followed by instructing ($8/30 = 26.7\%$) and explaining ($8/30 = 26.7\%$) in general class, and by direct feedback in resource class ($11/36 = 30.6\%$).

Table 7 also shows that a low proportion of all help requests (2.9% in general, and 3.2% in resource class) remained unanswered.

Insert Table 7 about here

4. Discussion

Our aim was to analyze the academic help-seeking behavior of 11 lower secondary students with ASD and the ensuing help-giving behavior of their teachers in a classroom context in order to complement the results of a previous interview study (Author1 & Author2, 2017a) concerning the same participants.

Concerning research question 1, results were in line with the first part our first hypothesis. In fact, as expected, all students with ASD except one actually sought help from their teacher at least once in general and/or resource class. At the same time, it is noteworthy that we observed interpersonal differences, which appeared to be stable: some students sought only little help (i.e., less than 10 times total during the three lessons) and did so in both contexts, while others sought a lot of help (i.e., 10 times or more), in both contexts. These differences show that our sample was a heterogeneous group of students in terms of initiating

contact with others, even if all of them were characterized by difficulties in social communication (cf. APA, 2013; Author1 & Author2, 2017b). The apparent stability of their help-seeking behavior across the contexts might reflect their personal characteristics (i.e., some students are more withdrawn while others are more talkative, independently of the context). More research is necessary in order to verify this interpretation.

Regarding research question 2, results lent support to our hypothesis, based on the work by Huet et al. (2013), according to which students' observed help-seeking behaviors would not be consistent with previous findings obtained from the same students using self-report data (Author1 & Author2, 2017a). Further studies with bigger samples of students with but also without ASD are necessary to clarify this issue. In fact, as shown above (cf. research question 1), interpersonal differences in observed help seeking were important. In addition, the methodology used to collect self-reported data on help seeking might need to be improved; some categories of requests identified in the present study might not have been considered as help seeking by the students.

Concerning research question 3, results showed that in both contexts, a high proportion of observed help seeking fell into categories that, to our knowledge, have not been reported in the help-seeking literature thus far (i.e., organizational and ambiguous help seeking). This seems to be in line with our expectation regarding the emergence of previously unreported help-seeking categories in ecologically valid contexts. More research is needed in order to determine whether these "new" categories are specific to students with ASD and/or whether their absence in previous help-seeking literature is related to the data collection methods and procedures used.

Furthermore, instead of a simple distinction between verbal and nonverbal means to solicit help (cf. Nelson-Le Gall, 1981), the analysis of students' actual help-seeking behavior (research question 4) provided a more fine-grained picture of the means employed by students

with ASD to seek help. In fact, contrary to our expectations, the results revealed that students with ASD always used verbal means to solicit help: through formulating a question (approximately two thirds of the cases, in both contexts) or making a statement. However, in 33% of the cases in general class, and 16.5% in resource class, students employed complementary nonverbal or verbal means, probably in order to draw their teacher's attention before or during the formulation of a request. Future research with a bigger sample of students with and without ASD is necessary to confirm this finding and to explore whether merely nonverbal means are used to solicit help in class.

Instrumental and organizational help as well as confirmations were nearly always solicited through formulating a question, whereas ambiguous help seeking systematically corresponded to making a statement (Table 5). It appears as if students who request something detailed—e.g., a clarification concerning the organization of a particular task—formulate a (precise) question; and students whose request's content is unspecified—e.g., an announcement concerning their inability to perform a task—make a (vague) statement. Could a parallel be made between ambiguous help seeking described in the present paper and unspecified help seeking (i.e., “requests that do not allow the teacher to infer what type of help is requested”) reported by Puustinen et al. (2011, p. 285)? Or, perhaps more importantly, could ambiguous statements such as “I'm not going to be able to do this task.” actually not correspond to soliciting help from the helper but reflect another previous step of the help-seeking process, namely determining whether there is a problem and whether help is needed (Karabenick & Newman, 2009; Nelson-Le Gall, 1981)? Given that students' reflections were expressed out loud, teachers could have interpreted them as requests for help and provided help. Additional research is warranted in order to more clearly define the role played by ambiguous help seeking in the help-seeking process.

Regarding research question 5, nine categories were identified, three of which—providing direct feedback, explaining, and instructing—gathered nearly three quarters of all help giving. Instrumental help seeking was most frequently followed by explaining, and confirmation-asking by positive and caring feedback, in both contexts. In these cases, the help-seeking process may thus be considered as successful, since instrumental help seeking is about asking for explanations to progress in solving a task by oneself (Nelson-Le Gall, 1981), and confirmation-asking may reflect a lack of self-confidence (Author2 et al., 2008). Two other findings concern the above-mentioned new help-seeking categories. First of all, ambiguous help seeking was most frequently followed by direct feedback, in both contexts. This finding could suggest that when students request something unspecified, they make a vague statement (cf. interpretation mentioned above), and teachers, perhaps feeling their uncertainty, react by providing them with reassuring and encouraging feedback. In addition, organizational help seeking was most frequently followed by instructing and explaining in general class, suggesting that the general class teacher interpreted the student's request as a need for precision or a reminder of the work habits in class. More research is needed to verify these novel findings.

Results presented in this paper should be interpreted with caution due to the small sample size, and especially its specific nature. In addition, the filmed scientific lessons (six per student) probably do not reflect the students' behaviors throughout an entire school year; a (micro)longitudinal study examining the help-seeking behavior of students with ASD over time would be necessary. Despite these limitations, the present study contributed to putting emphasis on the interest of complementing self-report data on in-classroom help seeking and help giving using video-recorded data. The results could have practical implications in implementing interventions on student-teacher interactions for students with ASD. For example, video training could be introduced in preservice and/or in-service teacher education,

in order to train general and resource class teachers to identify these specific behaviors and adapt their pedagogical practices.

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Table 1

Categories and examples of help sought by students with ASD and help provided by their teachers

Categories	Examples
<i>Help seeking</i>	
Instrumental help seeking	
concerning the procedure to achieve a task	“How can I solve this without knowing the length measurement?”
concerning the definition or explanation of a word, an expression, a notion, the spelling of a word	“What does ‘purple with rage’ mean?”; “Can you spell ‘chlorophyll’?”
Executive help seeking	
Confirmation-asking concerning a task already achieved or to be carried out	“What is the answer to this question?” “Can you tell me whether I completed the task successfully?”; “Are you sure I can start doing this task?”
Help seeking concerning the organization, the goal and/or the interest	
of the task	“What are we going to do after this task?”; “Why are we watching this video again?”
of the learning situation	“Could you enlarge the video and turn down the sound so I can watch it?”
<i>Ambiguous help seeking, i.e., help seeking that cannot be coded unequivocally</i>	
<i>Help giving</i>	
Providing direct feedback ^a on	
student’s production (oral, written, manipulation)	“What you have done is fine.”
student’s knowledge	“You know it!”
continuing of the task (encouragements)	“Continue, say it.”
Providing hints	
implicit hint or incitation (beginning of an idea)	“You remember when we talked about Saturn, Pluto...”
explicit hint (definition, beginning of a sentence, choice among answers)	“There are things that begin by an uppercase letter and end by a point.”
gestural hint accompanying teachers’ words	The teacher mimics the concept or word that the student should say.
Instructing	
repeating previous instructions or giving a new one	“Take a new page, please. A new page.”
showing where to carry out a task or to look at	“You can begin here in your notebook and write 3).”
Explaining	
repeating a previous explanation or giving a new one	“As I said before, ...”
rewording a previous explanation	“Too little, indeed, or unreadable, in a corner of the page.”
making inferences for the student	“Here, it means that the main character of the story is not aware of what happened before.”
Modelling (i.e., giving an example or a model)	“You can do it in this way.” (the teacher shows a model)
Questioning	

to move student's reflection forward
to make the student remember
to verify the student's understanding
to verify the progress of the ongoing task
to verify the student's emotional condition or attention span

Marking critical features

about the task
about the cognitive strategy to adopt

Establishing contact physically (without speaking)

Mobilizing the student's attention

Note. ^a Positive and caring feedback.

"What do you think about this author's ideas?"

"Do you remember what we did yesterday?"

"Do you understand what I mean?"

"Have you finished your exercise?"

"Are you ok?"; "Are you listening to what I am saying?"

"In this exercise, you have to follow the instructions carefully."

"Steve, here, you must adopt the 'detective' strategy."

The teacher touches the student's arm.

"Just concentrate on what we are doing."

Table 2

Examples of help-seeking/help-giving exchanges and their codings

Interlocutor	Translated exchanges	Help-seeking category	Means used to solicit help	Help-giving category
<i>General class</i>				
Student (S)	Mister G.?	-	call the teacher by his name	-
Teacher (T)	Yes.	-	-	-
S	I can't figure it out.	ambiguous	make a statement	-
T	Ok, I'm coming. / Do you have your calculator?	-	-	- / questioning
<i>Resource class</i>				
S	We make sentences?	instrumental	ask a question	-
T	Yes, now we're making sentences. / We took notes and now you're making sentences.	-	-	instructing / explaining
S	We use a pen? Or pencil?	organizational	ask a question	-
T	You can use what you want. Now, we write on a draft so you can write as you want. / You're allowed to erase; you are allowed to fail and to start over. / Is that all for you?	-	-	explaining / marking critical features / questioning

Table 3

Observed frequencies of help seeking and student-reported help seeking in general and resource class

Student	Student ^a help seeking			
	General class		Resource class	
	Observed frequency ^b	Self-reported ^c	Observed frequency	Self-reported
1	0	Yes	0	Yes
2	0	No	1	Yes
3	4	No	1	Yes
4	3	No	3	Yes
5 ^d	3	Yes	6	Yes
6	9	Yes	7	Yes
7	4	Yes	16	Yes
8	15	No	17	No
9	27	Yes	24	Yes
10	11	No	25	No
11	24	Yes	81	Yes
Total	100		181	

Note. ^a $N = 11$ (students with ASD). ^b Requests for help repeated (nearly) identically and consecutively as long as the teacher has not answered it are not considered and accounted as academic help seeking. ^c Global results concerning student-reported help seeking were presented by Author1 and Author2 (2017a). The question addressed to the students was: “If you cannot complete a task by yourself in class, what do you do?”. Students could give several answers (e.g., I seek help, I continue to think about it by myself): “yes” means that they cited help seeking among their answers, and “no” means that they did not cite help seeking at all. ^d Student number 5 is the only girl of the sample.

Table 4

Observed frequencies of help seeking for the 11 students with ADS in general and resource class

Student	Student ^a help seeking											
	General class						Resource class					
	Instrumental	Confirmation	Executive	Organization	Ambiguous	Total	Instrumental	Confirmation	Executive	Organization	Ambiguous	Total
1	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	1	0	0	0	1
3	0	0	0	1	3	4	0	1	0	0	0	1
4	0	0	0	1	2	3	1	0	0	0	2	3
5	1	1	0	0	1	3	0	3	0	0	3	6
6	3	2	0	0	4	9	2	0	0	3	2	7
7	1	0	0	2	1	4	9	0	1	4	2	16
8	1	3	1	8	2	15	2	3	0	7	5	17
9	6	6	0	7	8	27	3	9	0	4	8	24
10	3	5	0	1	2	11	3	5	0	8	9	25
11	3	2	0	9	10	24	18	31	0	8	24	81
Total	18	19	1	29	33	100	38	53	1	34	55	181
%	18	19	1	29	33	100	21	29.2	0.5	18.7	30.4	100

Note. ^a*N* = 11 (students with ASD).

Table 5

Observed verbal means to solicit help in general and resource class

Means	Student ^a help seeking													
	General class							Resource class						
	Instrumental	Confirmation	Executive	Organization	Ambiguous	Total	%	Instrumental	Confirmation	Executive	Organization	Ambiguous	Total	%
Ask a question	18	19	1	28	0	66	66	38	53	1	33	0	125	69.1
Make a statement	0	0	0	1	33	34	34	0	0	0	1	55	56	30.9
Total	18	19	1	29	33	100	100	38	53	1	34	55	181	100

Note. ^a $N = 11$ (students with ASD).

Table 6

Observed nonverbal and verbal means used prior to, or concurrently with the verbal solicitation of help in general and resource class

Means	Student ^a help seeking											
	General class						Resource class					
	Instrumental	Confirmation	Executive	Organization	Ambiguous	Total	Instrumental	Confirmation	Executive	Organization	Ambiguous	Total
Raise one's hand	4	0	0	4	1	9	0	0	0	0	3	3
Express confusion, exasperation or tiredness	0	0	0	2	1	3	1	0	1	0	7	9
Establish eye or physical contact	2	1	0	2	5	10	4	1	0	2	2	9
Call teacher by his/her name	4	0	0	5	2	11	2	0	0	1	6	9
Total	10	1	0	13	9	33	7	1	1	3	18	30
%	30.3	3	0	39.4	27.3	100	23.3	3.3	3.3	10	60	100

Note. ^a*N* = 11 (students with ASD).

Table 7

Observed frequencies and percentages of teacher help giving in response to student help seeking in general and resource class^a

Teacher ^b help giving	Student ^c help seeking													
	General class							Resource class						
	Instrumental	Confirmation	Executive	Organization	Ambiguous	Total	%	Instrumental	Confirmation	Executive	Organization	Ambiguous	Total	%
Feedback	5	13	0	7	16	41	29.3	7	23	1	11	25	67	30.9
Instructing	1	7	0	8	12	28	20.0	7	17	0	9	12	45	20.7
Explaining	8	7	0	8	12	35	25.0	17	9	0	5	11	42	19.4
Questioning	4	4	1	1	7	17	12.1	8	14	1	3	12	38	17.5
Marking critical features	3	1	1	0	0	5	3.6	2	0	0	4	1	7	3.2
Hints	1	2	0	2	0	5	3.6	1	1	1	0	3	6	2.8
Modelling	1	0	0	1	0	2	1.4	1	1	0	0	1	3	1.4
Mobilizing attention	0	0	0	0	2	2	1.4	0	1	0	0	1	2	0.9
Establishing physical contact	0	0	0	1	0	1	0.7	0	0	0	0	0	0	0
No help giving	1	0	0	2	1	4	2.9	1	1	0	4	1	7	3.2
Total	24	34	2	30	50	140	100	44	67	3	36	67	217	100

Note. ^aFrequencies observed in this Table exceed those reported in Table 3. In fact, in response to a single student request, teachers could provide several types of help (e.g., mobilizing attention, explaining, and instructing). ^b $N = 17$ (10 general class teachers, and 7 resource class teachers). ^c $N = 11$ (students with ASD).