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Voices from practice: When is the gap between diagnosis and intervention apparent?

Marlous Tiekstra, Lotte Bergwerff & Alexander Minnaert

Aim: In this manuscript an overview is provided of the current state of psycho-educational practice in the Netherlands, in particular the role of test outcomes considered. In order to detect clues for bridging the gap between diagnosis and intervention, one should investigate the ecology in which this gap is apparent.

Method: Two *in vivo* studies have been carried out. In a first study, a questionnaire has been administered to a total of 36 school psychologists, 21 special care coordinators, and 44 teachers.

Results: A qualitative analysis of the answers, by means of a classification scheme (κ .82), revealed questions about the specific role of intelligence tests and its consequences to educational practices. Therefore, a case study has been carried out in a second study. The case study provided in-depth information about the targeted care process around a grade 1 student.

Conclusion: Results indicated a gap between diagnosis and intervention that followed after the administration of the intelligence test. Suggestions are proposed for improvement, and the need for interventions at the level of educational professionals is highlighted.

Keywords: Psycho-educational practice; qualitative multi-method study; consequential validity; IQ tests.

THE RESULTS of a recent literature review (Tiekstra et al., 2016) showed that more attention should be drawn to consequences of test administrations and test results in the educational field. In other words, the consequential validity (Messick, 1995) of assessment procedures is insufficiently warranted at the moment (Tiekstra et al., 2016). As a consequence, the well-known gap between diagnosis and intervention remains present (Haywood, 2012; Shapiro & Kratochwill, 2000). If we want the attempts in bridging this gap to be successful, one should not only focus on the outcomes of the assessment procedures, but also focus upon educational practice. Several authors (see e.g. Dweck et al., 1995; Tiekstra & Minnaert, *in press*) demonstrated that the way people think about intelligence influences the way people act in practice. Implicit theories of intelligence, thus, play a prominent role in educational practice. Accordingly, test scores

influence teachers' ideas and beliefs about students, and are often used for decisions about a student's academic career (i.e. special education eligibility, targeted care). Therefore, the need for valid outcomes of (intelligence) tests is urgent. This article reports on the results of an *in vivo* study where a group of at-risk students was subject to a profound examination. Only in this way ecologically valid conclusions can be drawn about the state of consequential valid test outcomes that might bridge the gap between diagnosis and intervention.

Role of test scores

When diagnosing children with severe learning disabilities, test scores play a prominent role. Generally, school achievement tests are used to detect learning delays, and standardised intelligence tests often come into play when students show persistent learning delays. According to the new edition of

the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; *DSM-5*; American Psychiatric Association, 2013), used by practitioners as a guideline for diagnosis of a disability, an IQ score is still regarded as an important parameter to diagnose learning disability. Therefore, an IQ measure can often be a prerequisite to receive subsidies from the government. As a consequence, if a child displays difficulties in learning reference is often made to an IQ test. To summarise, IQ tests still play a prominent role in daily psycho-educational practice, especially in the Netherlands.

The use of IQ tests in individual assessment procedures is, however, questionable. Growing evidence shows that IQ tests do not provide reliable and valid measures in at-risk children (for more information see e.g. Tiekstra et al., 2009). Besides, intelligence tests have been criticised for their lack of information for practice (Gresham & Witt, 1997; Lebeer et al., 2011), often referred to as the gap between diagnosis and intervention (Shapiro & Kratochwill, 2000). It is worth mentioning though, that, originally, standardised tests had been developed for classification issues instead of educational intervention planning. Theoretically, this means that IQ tests are not purposefully developed to provide information for educational practice. Subsequently, the question arises whether and why we should administer IQ tests as frequently as is done in current educational practice? Lebeer et al. (2011) demonstrated in their large-scale study among European countries that there is an urgent need for practical information according to test outcomes. Moreover, if we want to prevent teachers from planning their instruction intuitively, a focus upon accurate translation of test outcomes to daily practice is required.

Alternative formats of assessment should be used to bridge the gap between diagnostic assessment and classroom practice. Bosma and Resing (2008) proposed to use dynamic assessment. They investigated the opinions of teachers about diagnostic reports in which

a measure based on either a traditional or a dynamic test was indicated. Teachers appreciated the dynamic reports in which clues for classroom practice were provided. Moreover, classroom observations revealed that some of the teachers even adapted their instruction. Research shows, however, that dynamic assessment is not yet implemented in educational practice (e.g. Elliott, 2003). Currently, the gap remains present in Dutch educational practice in two ways: the use of standardised tests do not provide guidelines for the process after the assessment; furthermore dynamic assessment (which provides such guidelines) is not yet implemented in schools.

Professionals involved

In terms of reference, generally, individual tests are administered by school psychologists in the Netherlands. In the past, research has underlined the differences between school psychologists and teachers with regard to their opinions about information that is needed for educational intervention planning. For example, Thurlow and Ysseldyke (1982) indicated that school psychologists relied on the use of standardised test outcomes solely, while teachers supported the use of behavioural observations in instructional planning. Rouse and Agbenu (1998) underlined the problems teachers have with all kinds of assessment and suggest that 'many of the problems results from confusion about the nature and purpose of assessment, the teachers' role in this process and how to assess pupils with learning difficulties.' In short, more insight is needed into the educational practice with regard to processes around students showing problems in learning and information processing.

In the Netherlands another professional comes into the picture when a child has learning difficulties: next to the remedial teacher, a special care coordinator operates within the care system of the school. This special care coordinator is mostly based within the school (internal disposition), but in some cases the special care coordinator is based at the

school's network (external disposition). In Dutch regular education, the teacher generally detects learning problems of students (as caused by learning delay, learning disability or behavioural problems) in the classroom. The special care coordinator's task is to support the teacher in resolving these learning delays. If the learning problems exist, the school psychologist will provide specialised assistance. In effect, usually, the care process is organised by different professionals involved. Theoretically, this implies clear roles, but in educational practice these roles are less clear. As demonstrated by Imants, Van der Aalsvoort, De Brabander and Ruijsenaars (2001) special care coordinators have different functions in different schools, and rarely provide coaching to teachers.

Aim of the current research

If the consequential validity of assessment procedures needs to be improved, then we should know how the care processes in schools are effectuated and what role test outcomes play in these care processes. The aim of this research is to thoroughly explore the processes in regular education in the case of an at-risk student. What role do the professionals involved play, and what type and kind of information are decisions based upon? Therefore, the goal of the study was to provide situational information about this issue by interpreting information from multiple *voices from practice*. This demanded a two-step approach; a questionnaire was distributed first. Second, a case-study was needed to provide answers to questions resulting from these questionnaires.

General method

The *in vivo* study aimed to describe experiences and needs of educational professionals in the Netherlands. A multiple qualitative approach was used: two separate studies were carried out. A questionnaire comprising statements, vignettes, and open-ended questions was administered to explore the current state in providing care to at-risk students. In addition, a case study was carried out which allowed for in-depth information. A case study

describes a case within a context, resulting in detailed information that is closely related to practice (Flyvbjerg, 2006; Swanborn, 2010). The school selected for the case study did not participate in the questionnaire study, nor had any knowledge of it.

The study was set up in collaboration with an educational advisory agency in the Western part of the Netherlands. In comparison to other parts of the Netherlands, teachers in this area are confronted with more at-risk students in their classrooms having more serious problematic home situations. Due to the high incidence of immigrant children, schools often receive financial aid from the government, which can be used for extra student oriented assistance inside or outside the classroom.

Study 1: *In Vivo* Questionnaire Method

A questionnaire was developed which addressed several aspects of the care process around children showing any kind of learning problems in regular education. These aspects were the identification of problems (related to intelligence and intelligence tests), educational plans, communication, and the effectuation of care processes. Examples of items can be found in the appendix.

Sample. The aim was to obtain responses from 50 school psychologists, 50 special care coordinators and 150 teachers. First, school psychologists attached to the educational advisory agency completed the questionnaire. Second, school psychologists distributed the questionnaire to one special care coordinator with whom they worked regularly and three teachers within one school at which the special care coordinator worked. A total of 44 teachers, 21 special care coordinators, and 36 school psychologists participated in this research, which reflects a response rate of 40.4 per cent in total.

Instruments. The questionnaire comprised of three divisions: statements, a vignette, and open-ended questions. Logically, these questions needed to be closely related to the daily

practice of participants, so three different versions were developed.

The statements had to be answered on a Likert-scale, varying from 1 (completely disagree) to 5 (completely agree). Participants needed to respond to 17 or 18 statements, depending on the version. An example of an item in the teachers' version is *The information I get from the special care coordinator is sufficient to adapt my instruction to the specific needs of student*. And an example which was used in all versions is *Administering an IQ test is essential for setting up educational plans*.

The vignette was composed of a situational description in which a student with severe learning problems needed to be identified. The participants were asked about their role in the care process in two multiple choice questions (special care coordinator, and school psychologist) or one multiple choice and one open question (teacher), formulated as *What would you do if you would observe problems of student X, as in the given case?*

The section with open-ended questions also focused on the care process of students showing learning problems. In the version for school psychologists three questions were asked. Special care coordinators had to answer five questions. The teachers' version comprised another multiple choice question (where the last option was: *something else, namely...*) and four open-ended questions.

Procedure. The questionnaire was distributed to school psychologists in the second semester of the 2012 school year. Then, school psychologists were asked to distribute the questionnaire to special care coordinators and teachers with whom they worked. These completed questionnaires were sent to the researcher.

Analysis. A descriptive analysis took place of the statements (frequency analysis) and the multiple choice questions. Answers to the open-ended questions have been analysed by means of a classification scheme. This classification scheme was developed in two phases. First, 10 per cent of the questionnaires were randomly selected to formulate classifications.

The selected questionnaires did not provide sufficient variation in answers, therefore classifications based on researchers' experiences were added to the scheme. Several examples of items and the categories in the classification scheme can be found in the appendix. It must be mentioned that multiple classifications could be scored per item. The classification scheme was tested for its reliability, resulting in an overall interrater agreement of $\kappa.82$. The Cohen's kappa for the version of teachers was $\kappa.74$, for special care coordinators $\kappa.90$, and $\kappa.87$ for school psychologists. Because of these high Kappa values, the classification scheme can be considered reliable, and not subject to chance.

Results and interpretation study 1

Identification of problems. The vignette study showed that teachers generally observe learning problems based on the results of the previous school year (45 per cent), or based on observations in the classroom (46 per cent).

The majority of teachers think that administering IQ tests is essential for advice with regard to educational practice, whereas only a minority of school psychologists and special care coordinators supports this statement. In any case, teachers are informed about the results of the individual test administration by the school psychologist. Less experienced special care coordinators (0–3 years of experience) indicate that their advice to teachers is *often* to *very often* based on these test results, whereas more experienced special care coordinators (≥ 3 years) indicate *sometimes* this is the case. Special care coordinators do not administer IQ tests themselves. 44 per cent of school psychologists think that current intelligence tests are appropriate enough to base their advice on. Whether this advice is rather needs-based or classification focused remains unclear. Moreover, special care coordinators and school psychologists value the outcomes of intelligence tests to a wide range (min. 1 max. 4), implying large individual differences.

The value of information that intelligence tests provide for educational practice

is ambiguously evaluated by school psychologists. On the one side, school psychologists often provide advice for the classroom practice based on test outcomes. On the other side, they indicate that test outcomes do not provide such information exactly to the specific context of the assessed student. Here, too, the type of advice remains unclear.

Half of the teachers indicated that they identify learning problems when a student shows low scores on curriculum related achievement tests. There is no consensus in the answers about the use of these tests in the identification of learning problems. Forty per cent of teachers consult their more experienced colleagues in the case of at-risk students.

And finally it should be noted that clear differences were observed with regard to the knowledge of dynamic assessment: only 10 per cent of teachers knew what dynamic assessment is, compared to 30 per cent of special care coordinators, and 80 per cent of school psychologists. It must be mentioned, though, that these percentages are elevated compared to average Dutch schools. The questionnaires were administered to a group of school psychologists who worked at the same educational advisory agency. This agency provided their staff with training in dynamic assessment which is rather exceptional in the Netherlands. Therefore, these percentages are not representative of the Dutch population. Despite this, the amount of teachers and special care coordinators is, still, very small. Moreover, only 80 per cent of school psychologists indicated to have knowledge of dynamic assessment.

Individual Educational Plan (IEP). Seventy per cent of the special care coordinators think that the psychological reports provide enough information for instruction in the classroom. It appeared that teachers set up IEPs, sometimes in consultation with the special care coordinator. Sixty per cent of special care coordinators and 86 per cent of school psychologists indicate setting up an IEP for teachers only rarely. The content of the IEP is often discussed between special

care coordinators and teachers (80 per cent). Strikingly, no special care coordinator reported that the educational plans are discussed with the school psychologist.

With regard to the psychological reports, 33 of 36 school psychologists need test results to write these reports. Besides, 25 school psychologists would like to receive information from the teacher, and 19 indicate information about the home situation of the student.

Communication. In most cases, teachers report immediately to special care coordinators when observing learning problems (41 per cent). However, teachers did not answer clearly to the question 'What happens after you consulted the special care coordinator?' The majority of teachers indicate that the information they get from special care coordinators is sufficient for adapting their instruction. Special care coordinators and teachers evaluate the adapted instruction with regard to at-risk students regularly. However, school psychologists are not informed of the adaptations in the teaching process.

According to the answer to the open-ended question 'What is the school psychologist's role?' the role of school psychologist is not clear to teachers. According to some school psychologists, on the other hand, information they provide about the students' results and advice is not acted upon by the teacher. Evaluation of the care process only takes place between teacher and special care coordinator. School psychologists are rarely involved with evaluation, as one of them remarked: 'I suspect that my advice is put into a drawer and never looked at again.' This demonstrates that there might be discontinuity in targeted care.

Effectuation of care processes. As mentioned before, teachers report to special care coordinator in the case of an at-risk student. The steps undertaken by special care coordinators differ very much. Answers like *I administer several tests* (24 per cent), or consultation to other experts (19 per cent) were mentioned. They seldom assist in adapting instruction: half of them indicate *never* inventing exercises

for the classroom instruction, the other half rarely.

According to teachers, the school psychologist is consulted when the school is unable to provide appropriate intervention. Seventeen per cent of the school psychologists immediately administer an IQ test when a child is referred to them, 83 per cent work differently. Several aspects, like classroom observation, parental or teacher consultation, are mentioned. School psychologists, thus, work very differently with respect to at-risk students.

Future needs. Participants were asked about information they would need, and currently did not receive. Teachers strongly suggest that school psychologists provide information about care or interventions. Special care coordinators indicate the need for a specialist within the school. School psychologists would like to have opportunities to evaluate and take care of continuity of the care process. Currently, they cannot perform a follow-up of the students after their reports.

Conclusion study 1

Due to the rather ambiguous answers to questions around the value of intelligence tests for advice in educational practice, questions remained unanswered. Although participants were positive overall about care processes, discontinuity in the care processes was shown. Roles are unclear, and evaluation hardly takes place. Moreover, questions arose about the type and format of advice (remedial) teachers get from school psychologists who interpret the outcomes of an intelligence test. Why is an individualised assessment of intelligence administered? What happens afterwards? These questions needed to be answered in a second study. Therefore, a case study was carried out to unfold the process between assessment and intervention.

Study 2: Case study

Method

The aim of the case study was to provide answers to the questions produced by the first study, as mentioned above. The answers

to these questions will provide an insight in the gap between diagnosis and intervention.

Sample. The subject of the case study was the care process of a grade 1 student showing persistent learning problems. In particular, the role of an intelligence test was considered. The school in which the case study was carried out received financial aid from the government, due to the diverse multicultural population of students. This resulted in an additional grade 1 teacher for several days a week, which allowed for teaching in smaller groups and individual assistance for those students that needed it the most.

Instruments. Observations during all key elements in the care process (such as meetings, consultations, and test administrations), and observations in and outside the classroom were undertaken. Moreover, all professionals involved, i.e. teacher and additional teacher, school psychologist and special care coordinator (internal disposition), were interviewed regularly and at specific moments (such as parental consultation) during the process in order to gain insight into their beliefs and reasons for acting in the classroom. Finally, the student's files and the school's policy documents were studied in depth. The influence of the initial researcher to the care processes in the school was limited, since she remained in the background during observations and her interviews focused on gathering information instead of evaluating the process.

Procedure. During a four-month period the care process of the student was followed carefully. In total, data was collected at 13 of the abovementioned key moments during this four-month period. The study started in the second semester of grade 1 at the moment that the school psychologist was consulted for screening the student (beginning of March 2012). The student was referred to the school psychologist because of falling results on curriculum related tests as detected by the teachers and special care coordinator. From

the first moment that the school psychologist was consulted, the case study started. The study ended at the end of grade 1 (end of June 2012).

Analysis. For the trustworthiness of data (Lincoln & Guba, 1985) peer debriefing and member checking techniques were carried out. During each step of the data collection one or two other researchers critically reviewed subjective statements of the initial researcher. Information was checked with all participants involved. Moreover, data triangulation from the multiple data sources mentioned above contributed to the reliability of results. These techniques account for an objectification of outcomes.

Results and interpretation study 2

Why is an individualised assessment of intelligence administered in this case? At the first consultation, the teacher, assistant teacher, special care coordinator and the school psychologist decided together to start an 'individual assessment of intelligence' (IAI) to get more information about the student's problems. In the present case, the IAI comprised not only the administration of a static intelligence test, but also an observation in the general classroom by the school psychologist, and an analysis of the information provided by the teacher and special care coordinator (such as curriculum related tests outcomes, and information about the home situation of the student). However, within the school (i.e. teacher, special care coordinator, and assistant teacher) the IAI is seen as 'an estimation of intelligence of the student, and what to expect from her' and is seen as a very valuable instrument. The IAI appeared to be a tool to gain insight in the possible causes for learning delays of this student; the school had high expectations for the outcomes of the IAI. The special care coordinator and teacher expect advice from the school psychologist 'in order to eliminate the student's learning delays, and how they should act with this student'.

Later on in the process, the outcomes of the IAI appeared to play a less important role in

problem identification. The student's results on other assessments, such as curriculum related tests and scores on nationwide screening instruments, and teacher's observations appeared to be more relevant for the 'care' process. The outcomes of the IAI were only additive to these results. In this case, results of the IAI were surprising to the school, since they 'could expect more from the student than she shows at the moment'. At this moment, the participants seem to have different ideas about the usefulness and goal of the intelligence test administration. The assistant teacher indicates the influence of contextual effects during the test administration by the school psychologist: 'it is different from the classroom situation'. Participants seem to pay less attention to the outcomes of the test, since it is not in congruence with what they experienced in the classroom. In sum, the diagnosis of the problems of this student seems not to be executed in a cyclic process. There was no systematic evaluation of the outcomes regarding the care process of the child by the participants, other than the meeting with the school psychologist.

The reasons for the IAI are multiple: what can we expect from the student? What are the causes for the problems? But specific answers to these questions do not seem to be provided by the IAI. Other information sources (such as curriculum related test, observations) seem to provide information that is needed to give answers to these questions.

What happens afterwards? Even before the results of the IAI it was clear that the student needed more care in future: intensive individual remedial teaching was planned. Currently, the student already experienced intensive support with regard to Dutch (school language), and this support should be continued. In the care process, however, no structure or vision was observed, nor did the care process change after the administration of the IAI during the period of this study. Although the IAI showed that they could expect better results from the student, the school did not change their 'care' after the IAI outcomes. Thus, a gap between diagnosis and intervention was observed.

Summary. Before the administration of the IAI, high expectations concerning the outcomes of the IAI were set by the educational staff. At the end of grade 1, however, the results of the IAI did not play a significant role anymore. The researcher observed an overrated value of the IAI before the administration, and the gap between diagnosis and intervention was not bridged by the IAI. On the one hand, the IAI seemed to deliver important information for the school with regard to their expectations of the student. On the other hand, however, the school could not deduce practical guidelines from the IAI to develop a tailored program adapted to this particular student. While a lot was expected from the results of the IAI, the effects of the test administration did not translate to extra care and time for this student in practice, as could be observed during our study.

Conclusion study 2

Traditionally, an IQ test is regarded as the best instrument to find causes of learning problems. One could state that a blind faith in intelligence testing could be observed in the present case study. A lot was expected beforehand, but after the administration nothing changed in the 'care' process around the student, which reflects a certain discontinuity in the process. Different opinions about the usefulness of the IAI were noticeable. Educational professionals act rather intuitively, on short term vision, with respect to the care provided in this case.

General discussion

An overview of the current state of care of at-risk students in Dutch educational practice is provided by both studies described above. The results of the first study, in which questionnaires to school psychologists, special care coordinators, and teachers were distributed, indicated an important role of intelligence tests. However, answers were often ambiguous and large differences between participants were observed, especially with regard to the gap between diagnosis and intervention. Some schools use the information from an

intelligence test solely, others use alternative methods such as classroom observations. Moreover, different views about the role of the school psychologists indicate a difference in 'care' processes between schools.

The significance of intelligence tests to the development of interventions remained unknown. Therefore, a case study was carried out in the second study. The focus of the case study was the use of intelligence tests and its consequences for the 'care' process of a grade 1 student. It appeared that before the administration took place, a lot was expected: participants aspired to get a solution for, and clues for actions with, the student and her specific problems. However, the care provided to the student did not change after the administration of the intelligence test. In summary, there is a need for guidelines, but these guidelines are not provided by the individualised assessment of intelligence. Besides, during the time period of our case study, evaluation of the 'care' process between professionals was not undertaken, which also indicates a gap between diagnosis of problems and the interventions provided.

The studies underlined the need for other formats of assessment that provide specific guidelines for practice. Generally, assessment procedures focus on the estimation of cognition of the at-risk student. It can be questioned, however, whether learning problems of at-risk students always originate in cognition. Next to cognitive aspects, other aspects that play a role in learning processes, such as metacognitive and motivational aspects, should be taken into account when providing guidelines for adaptive education in the general classroom. In the case study the school psychologist not only used information from the intelligence test, but also information from the teacher and classroom observation. Still, a gap between his advice and the actions of the educational professionals in the school was apparent. This indicates the need for enhancement of professionals' skills with regard to interpretations of test scores. Even though this school

was known for its quality of care, gaps in the process could be detected, for example evaluation was not undertaken during the case study. As already highlighted by Rouse and Agbenu (1998), teachers should develop their skills in observation and assessment in order to bridge the gap between assessment and intervention.

It should be noted that both studies were carried out in a rather small, specific sample which could have biased outcomes. The educational advisory agency has shown interest in dynamic assessment, resulting in more knowledge among their school psychologists compared to school psychologists working at other educational advisories. Moreover, the case study has been carried out at a school which is able to provide more care due to financial aids by the government. This is not representative of schools in other regions of the Netherlands. It is estimated that the results described in this paper are rather positive compared to other Dutch schools.

With respect to the questionnaires it must be mentioned that answers to questions could have been subjected to individual cases and experiences of participants. When answering, they might have thought about specific students, resulting in differences in answers to the questions. Individual beliefs, thus, play a significant role in

answers to these questions. This relates to the issues of self-efficacy and implicit theories of intelligence in educational practice. As demonstrated by Tiekstra and Minnaert (in press), beliefs about the malleability of intelligence can have an impact on the actions of educational professionals. Therefore, next to knowledge about (dynamic) assessment, these beliefs should be taken into account when intervening in educational practice.

Several improvements are needed in current Dutch psycho-educational practice. Other formats of assessment, knowledge about assessment and diagnosis, awareness of one's own beliefs and their influence to one's own actions, and the need for evaluation between significant others in the learning process of student, are examples of aspects to improve in order to bridge the gap between diagnosis and intervention.

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Appendix. Examples of open-ended items and categories in coding scheme.

Item of questionnaire for teachers

Which information do you want from the school psychologist?

Assessment results	Advice on specific needs of student	Information about learning potential/intelligence of student	Information about level and manner in which instruction should be effectuated	I don't need any information	Unclear or no answer	Otherwise specified, namely:
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Item of questionnaire for special care coordinators

In what way do you provide support to the teacher when encountering students with learning problems?

Via conversations	I work with the student myself (e.g. assessments, observations)	I provide advice (about e.g. intervention programmes)	I evaluate students' results	Unclear or no answer	Otherwise specified, namely:
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Item of questionnaire for school psychologists

Which information do you need to formulate your actions-based advice?

Information from teacher	Classroom observation	Information from parents (home situation)	Insight in opportunities at school	Test outcomes (information about student)	Unclear or no answer	Otherwise specified, namely:
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