Input for the youngsters
Worth the effort

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28-08-2012

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1. Introduction

1.1 The 15% vvto project and input

In the Netherlands, English as a foreign language is an obligatory subject in the two final grades of primary school (ages 10-12). Recently however, more and more schools want to offer a foreign language (mostly English) at an earlier stage, even from grade 1 (age 4) onwards. This is called vvto (*vroeg vreemde talen onderwijs; early foreign language education)*. Thus far, schools differ in how they provide a curriculum in the different grades (see Persson, 2012). Also, new in this context is CLIL (Content Language Integrated Learning): this approach implies that subject-specific content for a class is provided in the foreign language, so without explicit language education. For example a geography class taught in English. This method has been gaining ground in secondary education, but has now set foot in primary education as well.

In current Dutch legislation, the language of instruction and communication at a school must be Dutch at all times. In CLIL lessons, the language of instruction and communication is a foreign language, therefore, CLIL is currently illegal. To get an idea of the viability of permitting this form of language education (CLIL) in primary education, and to establish the necessity of a possible amendment, an experimental project was set up: The 15% vvto project. The Ministry of Education, Culture and Science (Ministerie van OCW) thus gave 13 participating schools permission to use another language for instruction and communication (English, German or French) 15% of the total teaching time, for the duration of the pilot, which is three years. (for more details see the full (Dutch) report in appendix B). The Ministry of OCW asked the European Platform for an evaluation and so the European Platform decided to provide a report on the experiences with the project so far, with the help of two students. One of them was me, hence I visited a number of schools that were running the project. During these visits, it became clear from the interviews and observations with teachers and school boards that there were considerable differences among the language proficiency levels of the teachers,

duration of the lessons etc. The proficiency levels of the teachers ranged from B1 to C2 (CEFR, see section 3.2). Time spent on vvto and the teaching ways and means also differed from school to school. Furthermore, interviewing school staff revealed some differences of opinion on vvto and CLIL concerning starting age, content of the lessons etc. For example, one teacher was highly in favour of the foreign language being used as the only language during a vvto/CLIL lesson, whereas another teacher argued that the pupils were not ready to answer questions in English, so this teacher would explain in the foreign language, and the pupils would reply or ask questions in Dutch. This variation among schools was particularly triggering because continuing variation might have different effects on the pupils´ language acquisition in the long run. Differences in proficiency levels of the teachers influence the quality of the input (some pupils receive low quality input while pupils at another school receive high quality input), and the number of hours spent on vvto influences the quantity of the input. Differences between groups concerning the age they started receiving vvto/CLIL lessons may also have different outcomes in the long run.

Considering these differences may have different outcomes the question arose how input functions (what do pupils need in terms of input) in a primary school setting and how input influences the SLA process.

1.2 A language cannot be learned without input

It is impossible for human beings to learn a language without exposure to it. This exposure to language is also defined as *input*. A definition of input regarding second language (L2) learning is given by Flege: "all L2 vocal utterances the learner has heard and comprehended, including his own, regardless of whether these utterances have been produced correctly by L2 native speakers, or incorrectly by other non-native speakers of the L2" (175). Flege describes that most researchers are inclined to state that the input is more useful at a younger age i.e. during the critical period, in which a child is not yet subject to neurological constraints. According to Flege, it is the L2 input that is less adequate than first language (L1) input, and not so much the constraints from the L2

learner (177). The role of input in second language acquisition (SLA) is less clear than in L1 acquisition. Gass underpins this idea of input being different for L1 and L2 as she states: "it is an incontrovertible fact that some sort of input is essential for language learning; clearly, languages cannot be learned in a vacuum. What is controversial is the type and perhaps amount of input necessary for second language development" (86). There are several reasons why the role of input in SLA is different and less clear than in L1 acquisition. First, there is far more variation in the *quantity of input* that L2 learners are exposed to than L1 learners. There are many factors that contribute to the total amount of input. For example majority language of the community, home language and number of hours of exposure at school all define the actual amount of input that a L2 learner receives. Also, the *quality of the input* L2 learners receive varies greatly, even more than in L1 acquisition. This results in a more complex situation concerning the setting of second language acquisition.

1.3 Different theoretical perspectives

There are many approaches to and hypotheses on (second) language acquisition, all of which have a slightly different view on the role of input in SLA, yet all consider input to be influential to the language acquisition process. In Gass' work on input and interaction, she examines the role of input according to four different approaches. These four will be considered here as well. One of the most well-known theories is Universal Grammar (UG) theory, which states that a child has a built-in grammar system. When confronted with input, the system enables language acquisition. Other views on language learning are the input hypothesis (Krashen, 1985), the interaction approach and the information processing approach. In these theories, input plays a role in the SLA process, however, not every theory has a specific focus on input, and they vary in how important input is for SLA (Gass, 229). This will be further discussed in the section 2.

The focus of this study is on input rather than on the role of output and notions such as positive and negative evidence, however, these are discussed for the completeness of SLA theory on input. The interest of this study is the role of quality and quantity of the

input in relation to age, and in addition to that, whether the goals of the 15% project are in line with leading theories.

2. Second Language Acquisition Theories

2.1 Universal Grammar

As mentioned in the introduction, different approaches (theories) acknowledge input to influence child SLA, yet have different views on the role of input in SLA. Concerning language acquisition, UG theory aims to explain how this acquisition is being made possible for L1 learners. For second language acquisition, interlanguage competence and acquisition are at the heart of interest (VanPatten & Williams, 37). Generative linguistic theory includes the view that there is such a thing as the existence of an underlying mechanism that is responsible for language acquisition, referred to as Universal Grammar (UG). Considering L1 acquisition, a key element in UG theory is called the poverty of the stimulus, which means that not all grammatical knowledge can be literally gained from the input, and so the ultimate attainment is not entirely dependent on input. So, there is some unconscious knowledge in the learners' minds coming from an innate system (VanPatten & Williams, 37).

The question now is whether that innate system can function for SLA as well. A widely known hypothesis about this issue is the critical period hypothesis (CPH) which states that the innate system becomes less available for language acquisition with ageing, and, at some point, is no longer accessible at all. The reason for this is the alleged loss of neural plasticity of the brain when the critical period (CP) has passed (Fullana, 41). There can be different 'end points' of this period for different language areas. For example, for phonology it is suggested that the period ends at age 6 (Fullana, 41), **but for syntax ?.**

UG-theory further implies the existence of principles and parameters; if a certain principle presented via a certain kind of input, the parameters will be set correctly. One

way of explaining the fact that language knowledge goes beyond input is that people can understand a sentence they have never heard before (VanPatten & Williams, 37). In a nutshell, UG includes the principles and parameters, which are present from birth i.e. innate (Gass, 87). Concerning input, UG enables children to learn a language not solely from input, although UG and input are both needed for language acquisition and are therefore interdependent. So, generative grammar aims at studying the linguistic competence of native speakers for L1. For L2 acquisition, the focus is on interlanguage, because this potentially illustrates the use of UG via the L1 of the learner, also taking into account the critical period. How the principles and parameters function in L2 learning is hard to define (see White chapter 4) and is subject to continuing investigation.

A way to explain the language learning process in agreement with UG theory is the concept of interlanguage. From this approach, "input serves as a catalyst to trigger certain changes in the learner's grammar" (Gass, 89). According to Krashen's Input Hypothesis (1985), input must be comprehensible in order to be in the uptake, that is, what the learner stores in his memory (Gass, 87). In order to make use of the input, the input must be processed and the learner must, consciously or unconsciously, detect a mismatch between the input and the current grammar (White, 157). If learners do not detect this mismatch, L2 learners will not acquire a certain aspect from the target language. In UG, input provides language specific information that interacts with the innate system that leads to language learning (Gass, 225).

In short, in UG Theory, the focus is on input, because it can lead to the setting of parameters. However, input has to interact with the innate system to lead to language acquisition.

2.2 The input hypothesis

The input hypothesis by Krashen (1985) states that, in order to acquire a language the learner must understand messages (2). Further, for acquisition to take place input must

be a little beyond the level of the learner, also referred to as *i+1*; *I* referring to the current level of the learner, and *+1* referring to the next step in the acquisition process (2). The Input hypothesis is also based on the idea that there is a language acquisition device (LAD), which is also part of UG theory. Modified input (e.g. caretaker speech, teacher talk, foreigner talk etc.) is seen as evidence supporting the input hypothesis (Krashen, 4). These registers are characterised by the fact that language is simplified in order to be comprehensible for the learner. Speed, articulation, loudness, intonation, vocabulary and syntax may be altered and simplified. In caretaker speech, the goal is communication, not deliberately (L1) language acquisition. For SLA, registers can best be referred to as *non-native directed speech* (Gass, 58). Note that the input hypothesis does not predict that this simplification is necessary for language acquisition (Krashen, 8). Teacher talk is different in that it (usually) is a form of deliberate language teaching. Speech is also simplified, but focused on the next step (the *+1*) to be acquired in the (L2) language learning process. Foreigner talk is also aimed at communication in that a native speaker (NS) simplifies speech to enlarge comprehension by the non-native speaker (NNS) and moreover to enable a conversation. To which extent the speech is adjusted may vary according to the level of the non-native speakers' language competence, of course, but also even within one conversation, because of a revaluation of what the non-native speaker does and does not understand (Gass, 67).

Comprehensible input is not the only precondition for successful language acquisition, because if it was, children and adults -people of any age- would have similar acquisition patterns. Krashen further states that the input goes through a filter, the *affective filter* (3). This means that learners are blocked from fully using the comprehensible input and only part of the input will reach the LAD, so acquisition process can take more time than without the filter. So the lower the filter is, the more input can contribute to language acquisition. Factors contributing to the filter being 'up' are low motivation, anxiety,

lacking of self-confidence etc. (Krashen, 3). So, in this view, contrary to UG, the focus is specifically on input, and input is considered to play a significant role in SLA.

2.3 Input and Interaction

The input and interaction theory focuses on conversational interaction rather than on input (as in solely well-formed utterances to which the learners are exposed). From this perspective, language acquisition is fuelled by communication, and therefore output also contributes to SLA (see *the nature and function of output* by Gass, 49-85). In order to produce a sentence, one must use a syntactic structure (Gass, 138). Note that output does not *create* language knowledge but practices existing knowledge (Gass, 139). Practising existing knowledge and using that in communication gives the opportunity to get more input (from the interlocutor).

Feedback can also be considered as a type of input. Positive evidence concerns the well-formed utterances to which learners are exposed. Negative evidence concerns the incorrectness of an utterance. Both positive and negative evidence can be explicit or implicit (or: inexplicit). This results in four types of evidence given in the table on the next page (modified from Gass, 114):

Explicit direct	Direct	Explicit
	That's wrong	*You should say*
Explicit indirect	Indirect	Explicit
	Pardon me?	*Do you mean…?*
Inexplicit direct	Direct	Inexplicit
	That's wrong	*Repetition or nothing*
Inexplicit indirect	Indirect	Inexplicit
	Pardon me?	*nothing*

Table 1: types of feedback with examples ranging from explicit to inexplicit and from direct to indirect

Negative evidence can be explicit i.e. an overt correction: "No, it's not a base, it's a vase" or implicit, as the following example shows:

(…) From Mackey, Gass, and McDonough (2000) (qtd. in Gass, 226)

NNS: there's a basen of flowers on the bookshelf
NS: a basin?
NNS: base
NS: a base?
NNS: a base
NS: oh, a vase
NNS: vase

Feedback thus is a form of input the learner receives (e.g. in a conversation). There are however types of feedback in which there is no response (see table 1) i.e. inexplicit indirect and sometimes inexplicit direct. Furthermore, the role of negative evidence in SLA is not agreed upon (see for instance: Schwartz, 1993).

An important point in the interaction approach is negotiation, by which the learner's attention is drawn to areas that can be improved. An example may help to clarify the process of negotiation in interaction:

> (…) From Pica 1994 (qtd. in Gass, 112)
> NNS: The windows are crozed
> NS: The windows have what?
> NNS: Closed.
> NS: Crossed? I'm not sure what you're saying here.
> NNS: Windows are closed
> NS: Oh, the windows are closed, oh, OK, sorry.

For negotiation, there needs to be a trigger (the first line in the example) to indicate a difficulty in understanding for the interlocutor. Briefly, the purpose of the rest of the negotiation is to come to a resolution and mutual understanding. The function of negotiation is to make input comprehensible (Gass, 131). In other words, it clarifies new information for the learner. Negotiation can thus be taken as a form of negative evidence. Another important factor in this model is attention: The negotiation makes input comprehensible and enhances attention, which is also considered important in the language acquisition process. So, the focus is not specifically on input yet it is considered very important for the SLA process. The interaction hypothesis makes no statements as to the source of language learning i.e. the presence or absence of an innate system (Gass, 236).

2.4 Information Processing

Information Processing theory has as a starting point the assumption that processing information in the human brain is limited (Gass, 91). In this view, there are two ways to import second language and to process the L2: automatic processing and controlled processing. Automatic processing means that a response is learned over many trials, so that it became an automatic process. After the response becomes an automatic process, it is information stored in the long term memory. This information is retrieved automatically in an appropriate situation. In controlled processing, however, the activation of information is under control, and thus needs more time to be activated.

Through repeated performance controlled processing can evolve in automatic processing (Gass, 92). In information processing learners must focus their attention on input that has not been automatized yet. Learners must notice that there is something new i.e. notice the gap between the target language and their interlanguage level (Gass, 92). Hence input is needed to enable noticing this gap. In this view, the focus is, similar to the input and interaction hypothesis, not specifically on input yet it is considered very important for the SLA process.

The theories described above are presented in table 2
(modified from the models by Gass, 2009):

	Focus is specific on input?	Which input	How important
Input/interaction	No	All	Very
Input Hypothesis (Krashen)	Yes	Comprehensible input	Very
UG	Yes	Parameters	Depends
Information Processing	No	All	Very

Table 2: overview of different theories regarding the role of input

These theories serve to illustrate the role of input from different perspectives. Each of the models described above has a slightly different focus and different role for input, and how input influences acquisition. Because some of the theories include output as well, it is important to note the possible distinction between comprehension and production skills. DeKeyser and Sokalski 1996 (qtd. in Gass, 232) performed a replication study on input processing where the results show that input affected comprehension and output

affected production. This suggests that these skills are acquired separately (Gass, 232). There are however also suggestions that they function not entirely independently, as de Jong mentions in her chapter on output (97). If a learner hears a sentence the learner can produce a similar structure more easily, which is called syntactic priming (97). These conflicting findings suggest some kind of interaction between production and comprehension in the acquisition process, also found in the interaction approach.

The next chapter will address the practical issues in the execution of the 15% vvto project, in order to provide the context in which this project takes place as well as to relate the practical context to the above described literature in later sections.

3. Issues in the practical execution of the 15% vvto project

3.1 The start of the project

The 15% vvto project implies that 15% of teaching time in primary education can be spent on vvto. In the Dutch education system this is around 4 hours a week. Part of the project is that Content Language Integrated Learning (CLIL) must be used in this vvto time. In CLIL, subject matter is linked to language education. There is a range of activities that schools offer to their pupils, varying from songs and games to worksheets and thematic projects. The special element of this pilot project therefore, is that in these hours, teachers use the foreign language as the language of instruction and promote communication without an explicit focus on language input or structure. Although the pilot already commenced by January 2010, there are differences among schools regarding the years that have had vvto from that moment on or started later (e.g. in September 2011) and schools may not have had the resources to implement vvto and CLIL into the curricula of all years at the same time. In the interviews of our evaluation study (see Appendix B) practical issues concerning the implementation of CLIL in vvto were mentioned frequently. For example, many schools do not meet the proposed

number of hours for vvto, or spend little time on CLIL. It is not easy to estimate the effect of the project since some pupils started receiving English from year 1 (age 4) onwards , others for example from year 6 (age 9) onwards. The issue here is that the proposed standards for the project cannot fully be met (yet) due to practical matters. Teachers and boards indicate that time is needed to let this new way of teaching grow into the curriculum. Therefore, differences in quantity of input as well as starting age are hitherto fairly large.

3.2 Teachers' language proficiency

Teacher language proficiency influences the quality of the input pupils receive. Therefore, this section aims to illustrate the current situation at primary schools considering teachers' language proficiency. For the evaluation report (see appendix B) vvto and CLIL lessons were observed. During these observations, the language proficiency level of the teachers was estimated by the observers according to the CEFR (see appendix A). First, teachers can be divided into two groups: the group teachers and the language teachers. Group teachers are teachers who teach all subjects to a specific group, for example group 3. Language teachers are teachers who teach the foreign language in different groups. There are three possible scenarios: The vvto classes are provided for by the language teacher; the vvto classes are provided for by the group teacher; or both the language teacher and the group teacher arrange part of the vvto classes. Language teachers often have a high proficiency level in the foreign language, most likely because they were specifically hired to teach the foreign language. These teachers often are (near) native speakers. The proficiency level of the group teachers is less predictable. Group teachers may have been teachers for a long time before foreign language (mostly English) teaching in early grades was introduced. So now these teachers have to teach in English while they may not have had to use English so often before. Many group teachers had taken training in order improve their language proficiency (and feel confident about it). The teachers' proficiency into the levels as set by the Common European Framework

of Reference for Languages (CEFR). The opening paragraph of the official CEFR document states:

> The Common European Framework provides a common basis for the elaboration of language syllabuses, curriculum guidelines, examinations, textbooks, etc. across Europe. It describes in a comprehensive way what language learners have to learn to do in order to use a language for communication and what knowledge and skills they have to develop so as to be able to act effectively. The description also covers the cultural context in which language is set. The Framework also defines levels of proficiency which allow learners' progress to be measured at each stage of learning and on a life-long basis. The Common European Framework is intended to overcome the barriers to communication among professionals working in the field of modern languages arising from the different educational systems in Europe (1).

CEFR divides the levels of proficiency in three groups: A, B and C, subdivided into A1, A2 etc. These levels are defined for different language skills, such as reading comprehension, listening comprehension, writing, oral production and oral interaction. For a general specification of the levels, see appendix A.

Although the estimated average of the group teachers' oral proficiency is fairly high (3,8 corresponds to a near- C1 level), there is, however, still a considerable variation among the (oral) proficiency of the group teachers, as can be seen in table 3. The estimation is based on the observations made for the evaluation report (see section 1.1) on the basis of the CEFR language proficiency levels (see appendix A).

CEFR-level	1: A2	2: B1	3: B2	4: C1	5: C2	mean
Goup teachers	0	1,5	3,5	4	4	3,8
Language teachers	0	0,5	0,5	2	7	4,6

Table 3: observations of oral proficiency of teachers from the 13 schools participating in the 15% vvto pilot, according to the CEFR levels

So, not only are there bound to be differences in quality of input because of the difference between language teachers' and group teachers' proficiency, but between the proficiency of individual group teachers as well.

3.3 Number of hours

As stated above, schools vary in the number of hours they spend on vvto and CLIL. This is, most of the time, due to practical matters (see for examples from the interviews the full report in appendix B). Tables 4 and 5 provide a quick overview of how many hours per week are spent on vvto, and how much of that time is spent specifically on CLIL.

Table (modified) from the vvto report on the variation on the number of hours.

Time (hours p/w)	Group 1/2	Group 3/4	Group 5/6	Group 7/8
0,5 h				I
1 h	II	III	IIII	II
1,5 h	I	III	III	II
2 h	I	I	III	II
2,5 h				II
3 h	II	II	II	II
3,5 h				
4 h				I

Table 4: Total amount of time spent on vvto per week

Vvto time varies in how it is designed. Schools may run for example projects and spend some time on the project in the foreign language (that would be CLIL). In addition to this, a school may have a method for explicit language teaching (not CLIL). These two

counted together is the total vvto time. The games, theme-based activities, breaks, lunches etc. in the foreign language are CLIL activities. In the interviews teachers were asked to estimate the amount of time spent on CLIL. This was a difficult question for the teachers to answer (because of the range of events from saying "good morning" to "enjoy your meal") so only a few teachers gave an estimate, see table 5 on the next page.

% from the total vvto time which is spent on CLIL	Number of schools
0-25%	
25-50%	III
50-75%	II
75-100%	I

Table 5: percentage from the total time spent on vvto, which is spent on CLIL

Unfortunately, the effects on the SLA process of the number of hours spent on vvto and CLIL are rather unclear because no research has been done into the exact effects of this project yet.

In an experiment by Larson-Hall (which will be further discussed in the next chapter), a minimal input setting was found not to negatively affect the acquisition process.

However, the minimal input in that study was already 4 hours a week. As can be seen in the table, the average in the current case is far lower than 4 hours, somewhere between 1 and 2 hours a week.

4. Research Questions

The previous section served to illustrate that schools have varying amounts of time they spend on vvto and CLIL due to practical issues, and that the input children receive from the teachers differs in quality. Still, teachers, parents, school boards, and pupils themselves are enthusiastic about the project, even though the goals may not yet have been fully met.

One of the goals for the 15% vvto pilot (see section 1.1) is to implement a foreign language from the earliest groups onwards (age 4). In addition to that, the target number of hours for teaching in this language has been settled at 4 hours a week, and the teachers need to have a certain proficiency (CEFR level B2). The aim of this thesis is twofold: First, to provide insight into the role of quantity and quality of input and age of onset in child SLA on the basis of the literature, and second, to outline/estimate whether the criteria set for the 15% vvto project consistent with the theory described above. To gain insight into these two issues the following research questions need to be answered:

1. How does the quality and quantity of input influence (child) SLA according to literature?
   1.1 Do minimal input settings negatively affect the language acquisition process?
   1.2 Does marginal quality of the input negatively affect the language acquisition process?
   1.3 How are these related to age?

2. What is the relationship between the findings on input from literature and the educational practice of the 15% vvto project?
   2.1 Do the criteria on quantity, quality and starting age for the 15%vvto project correspond with the above described theory?
   2.2 Does the educational practice as observed in the school visits regarding age of onset, quality and quantity of the input correspond to the above described theory?

Section 2 has already addressed the literature on SLA and introduced the practical context of the 15% vvto project. The research results will discuss quantity and quality of

the input in relation to age more thoroughly and the criteria for the 15% vvto project will be addressed in relation to this.

5. Research Results

The preliminary issue to address in this section is the influence that quantity and quality of the input may or may not have have on the second language acquisition process according to literature. The sub-questions address whether a low amount of input, low quality of the input negatively affect SLA and how age is related to input.

5.1 How does the quality and quantity of input influence (child) SLA according to literature?

Fullana (43) states that "Singleton's (1995) estimation [is] that 18 years of instruction in the FL would be needed to attain the same amount of exposure to the TL that is achieved after one year in an L2 naturalistic setting". In a study by Larson-Hall, 4 hours of input per week is seen as a minimal input setting for SLA. In the 15% vvto project, this latter figure of 4 hours of input per week is the goal. So, according to Larson-Hall, the project implies a minimal input setting, especially since many schools do not yet achieve the 4 hours, but 1 to 2 hours instead. So the first sub-question is whether this limited number of hours affects the language acquisition process.

5.1.1 Do minimal input settings negatively affect the language acquisition process?

Considering amount of input (or: exposure), research mostly addresses factors such as such as age or quality of input, in addition to amount of input. An example is the study by Fullana (2006) which includes amount of input and the age factor, and even addresses the issue of quality of input. Therefore, this study is of interest for the research questions of this thesis.

According to the CPH, the critical period for phonology ends relatively early (around age 6) (Fullana, 41). Therefore the study by Fullana tested phonological accuracy. The aim of the study was to examine learners who only had received input in formal contexts (i.e. language learning settings). The study looked at perception and production of English sounds by Spanish and Catalan native speakers to examine the effect of different starting ages, and the effect of amount of exposure. There were 4 groups of subjects with starting ages 8,11, 14 and 18+ respectively, and three 'times of exposure' (which is the total time of exposure, being 200, 416 or 726 hours of exposure).

The results showed that, at minimal exposure, older starters seemed to outperform younger starters at both a perception and the production task. However, when the amount of input increased, the groups performed more alike and in the perception task, younger starters outperformed the later starters (at 726 hours of formal instruction in total). There were no significant differences found in the production task and none of the subject groups scored native-like in either of the tasks.

Another study examining the role of age in L2A when the amount of input is very small, is a study Larson-Hall. She wanted to examine whether a younger starting age is advantageous in a situation of minimal exposure to a(n instructed) foreign language. The subjects were Japanese college students who had no more than 4 hours of instruction in English per week. One group started learning English at the age of 9, the other group at the age of 12-13. Phonology and syntax were tested. Results showed that earlier starters had some advantages, and Larson-Hall concludes that:

> Contrary to what a person may think, age does not confer a 'magical'
> ability to learn a second language quickly and natively in a situation of minimal
> input. However, age does seem to play a non-negligible role in improving second
> language acquisition, given that language learners receive enough input. Starting
> to study a language at a younger age is one way to ensure larger amounts of
> language input, so the present experiment overall finds a beneficial effect for
> starting to study a language at a younger age, *even when input is only minimal*
> (58). (emphasis added)

This study shows that in spite of the minimal input of only 4 hours a week, younger starters still have an advantage over older starters. Although the study by Larson-Hall concerns age groups different from those in the 15% vvto project, the conclusion drawn in Larson-Hall's study concerns the total amount of input the learner receives, and suggests the starting age (or: age of onset) is less influential to SLA than amount of input. Minimal input settings can therefore still be beneficial, provided that the total amount of input is not minimal. This will be further clarified below with more examples.

Unsworth, Argyri, Cornips, Hulk, Sorace & Tsimpli (under review) conducted a study on the acquisition of grammatical gender in bilingual children to examine the effects of input and the age of onset. In this study the term bilingual is used to denote every child that has been exposed to two languages in childhood (i.e. up to the age of ten) (Unsworth et al., 4). The languages involved were Dutch and Greek as L1 and English as L2. The research questions concern the existence of age effects in child bilingualism and the effect of varying amounts of input on the acquisition of grammatical gender. The results from elicited production tasks of Dutch neuter nouns used in English of the Dutch-English bilinguals suggested an age-effect. However, a regression analysis to exclude the confound between age of onset and cumulative length of exposure (i.e. a younger starter may have had more input *in total* because he/she got more time to gather the input) showed that actually the best predictor for the production of a neuter noun was the cumulative length of exposure, and the % exposure (being the percentage of total time that input in English is received). So, the higher the cumulative length of exposure and the % exposure, the less likely the production of a neuter noun. For the results of the Greek-English bilinguals, the same regression analysis showed that the best predictors for the production of masculine and feminine nouns were again the exposure-related variables (34).

To sum up, from these studies it seems that quantity of input is rather important, more specifically, that the total amount of input is important.

In line with the two examples studies described above (Larson-Hall; Unsworth et al.), total amount of input is a good predictor for the success of acquiring a certain language feature (phonology, syntax). VanPatten claims that learners must be exposed to samples of the target language in large amounts (5). This is in accordance with what Unsworth et al. showed: That the % exposure is also an important variable. This suggests it does matter how much time is spent on L2. A large amount of input can be achieved through an early start or a large number of hours in a shorter period of time. How amount of input relates to age will be addressed below in the discussion of research question 1.3.

So, quantity of input may influence the second language acquisition process, however, the type of input that is provided in the time of exposure to the language also may be variable (as seen in the schools participating in the 15% project). The next sub-question will therefore address the issue of quality of the input.

5.1.2 Does marginal quality of the input negatively affect the language acquisition process?

An issue in the quality of input in formal instruction settings is the proficiency of the teacher (often this includes the notions of native speakers and non-native speakers). Flege (1991a, qtd. in Fullana, 44) even developed the "accented input hypothesis" which states that learners will not be successful in perceiving and producing L2 sounds accurately when the input is deficient regardless of their starting age (Fullana, 44). A study by Steinlen (2009) on the contrasts of native and non-native sounds pleas for language learning with the aid of acoustic data (220). The study analysed accents in English of Danish and German native speakers (university student-volunteers). Results show that there are three vowels that can be transcribed with the same phonetic symbol. So this phonetic symbol may be interpreted differently by people with different

mother tongues. The author argues that because phonetic symbols may be interpreted slightly differently, variation in pronunciation may arise. Therefore, the author is in favour of input provided by native speakers.

Considering language features other than phonology, the question arises whether native speaker input is as important as well. In natural language acquisition settings, modified input is not uncommon. As mentioned above in the discussion of the Input Hypothesis, modified input functions to enhance communication and aid the acquisition process. The adapted intonation, reduced speed, and simplified vocabulary and grammar enhance comprehension on the part of the learner, and from there on the learner is able to acquire new material. Regarding to the *i+1* notion, the input must ideally be modified to somewhat beyond the level of the learner. If this ideal modification is attained, the learner can take full advantage of the available input. So, according to the *i+1* notion, a person who just starts to learn a foreign language can definitely benefit from non-native speaker input.

There are other factors that may cause non-native input to be less beneficial to language learners than native speaker input. These include fluency, culture-specific knowledge, transfer effects, etc. Depending on the goal, teachers therefore need a certain language proficiency level in order for the students to learn the language well. If the goal is to become undistinguishable from a native speaker, surely one needs a native speaker for a teacher. However most of the language education in the Netherlands (and other European countries) is centred around internationalisation and communication (so-called C-bound language teaching, see Sifakis, 2004). In this type of teaching, the aim is not that of a learner becoming indistinguishable from a native speaker but rather to be able to communicate in the foreign language and to be able to interpret the interlocutor's utterances correctly. So, non-native speaker input may be beneficial for the students as well, under the condition that the teacher's proficiency level is sufficient to teach complex cultural issues in conversation as well.

So, lower quality than native-level might influence the SLA process negatively, since it is less natural (the L2 is not the mother tongue and therefore less natural) and phonologically different (mother-tongue accent) from native speaker input. Moreover, it impedes on the quality of conversation and communication in classrooms.

5.1.3 How are quantity and quality of input related to age?

Age is an important issue to consider because, bearing in mind the discussion about the critical period, what can be done at school to optimise SLA is a rather valid question. Numerous studies have been conducted on the relevance of age in second language acquisition and the critical period. As mentioned above, claims on the exact duration of the critical period differ, and different aspects of language seem to have different end stages. Studies agree on the idea that the ability to learn a language decreases with age, although they show conflicting findings on the reasons for that and when the cut-off point is exactly. Literature suggests that there are different cut-off points for different language aspects (see section 5.1.1) Also, there are certain differences in learning strategies and processing that are to do with age (see Ortega, 25)

There seems to be a general trend in literature that prefers an early start, even though not all the evidence points directly towards "the younger the better". As is the case with the studies of Fullana and Larson-Hall, younger starters (age 8) initially do not seem to have an advantage over older starters but do seem to 'catch up' after a certain number of hours of instruction (Fullana, 56; Larson-Hall, 58). In the Larson-Hall paper, age was related to the acquisition process, but only when the amount of input had reached a certain level (see section 4.1.1). This suggests that the quantity of input needs to be at a certain level to be beneficial for the younger starters. Ortega (2009) also emphasises the importance of total amount of input (or: cumulative length of exposure to the foreign language). Ortega argues that a foreign language context provides so little input that a

period of five years is needed to "capture any lasting differences between differing starting ages" (17).

Another theory supporting the idea that younger learners 'catch up' is the input hypothesis. Older starters get more comprehensible input and therefore they learn faster during the early stages of SLA, and younger learners acquire the language better in the long run because of their (initially) lower affective filter (Krashen 12). Krashen further suggests that the strengthening of the affective filter around puberty is in accordance with a cut-off point for language acquisition, resulting in the same turning point that the CPH predicts (though it might not be exactly at the same age).

According to the input hypothesis, the input learners receive must be processed in order to be beneficial (VanPatten, 57). Therefore VanPatten claims input processing is vital for second language acquisition, because it helps learners to focus on the relevant parts of information in the input (VanPatten, 86).

Similarly, de Jong argues in her study that explicit formal grammar instruction is highly effective to language learners (113). However, her subjects were university students (so they exceeded the age which supposedly still lies within the critical period) and therefore these students may have different learning strategies compared to young children.

Research on cognitive processes involved in second language acquisition show findings in favour of the CPH (Ortega, 21). Although Ortega is careful about using these findings as evidence for the CPH (22), she provides examples from the field of cognitive neuroscience which show that during syntactic processing, different parts of the brain are activated in late starters' brains compared to younger starters' brains (Ortega, 21). This suggests that children with different ages and stages of development of the L2 have

different needs concerning input. So, children at primary school may benefit from a playful approach and modified input, whereas older children may benefit from explicit formal instruction.

The examples used to answer the questions so far all come from the literature. The next question is how these answers could be interpreted for the primary school setting and the context of the 15% vvto project. The next sections address this issue.

5.2 What is the relationship between the findings on input from the literature and the educational practice of the 15% vvto project?

In the sections above, relevant literature has been discussed in order to gain insight into whether the goals for the 15% project are in agreement with the literature described here (in section 5.1). The connection between the literature and the 15% project is will be made in answering the following questions.

5.2.1 Do the criteria on quantity, quality and starting age for the 15% vvto project correspond to the above described theory?

The criteria for the 15% project are introduced in section 1.1 and 3, and imply that 15% of the total teaching time (4 hours per week) are spent on vvto/CLIL. Further, the language proficiency level of teachers involved must be B1 (CEFR) at the least. Ideally the lessons are started from year 1 (age 4) onwards.

Since a young starting age seems to be beneficial to language learning, the idea to start providing pupils with a foreign language at the early years of primary school is a plausible one. First, it seems younger starters seem to be 'open' to new languages because the critical period has not yet ended or because of a low affective filter (assumed there is some sort of period for a CP or low affective filter, see sections 2.2;

3.1; 4.1.3). Moreover, an early start enables learners to gather much input over the years (cumulative amount of exposure).

CLIL enables teachers and pupils to use the foreign language in a more natural way than in the traditional method where language is instructed formally from a book and where not much attention is paid to creative language use. The quality of the input therefore increases using CLIL. In addition to that, it seems reasonable to require (at least) a B2 proficiency level of the teacher, in order for the teacher to be able to have vivid interaction.

5.2.2 Does the educational practice as observed in the school visits regarding age of onset, quality and quantity of the input correspond to the above described theory?

As mentioned above (see section 2.4) it is important to make a distinction between production and comprehension skills (Gass, 232). When we do so, teachers must not only get the students to understand what they are saying, but to get them speaking in the second language as well. Some of the schools involved in the 15% vvto pilot paid less attention to pupils' production skills. This may be because teachers are already happy when pupils do understand most of what they are saying and doing (according to one of the interviewees). Some teachers find it difficult to get pupils to speak in English (see appendix B, 19). This reaction suggests that practical difficulties (e.g. lack of time, number of children in the classroom, pupils who just started to learn English and therefore are not used to speaking English) impede on paying attention to speech production in English.

So the notion that it is sufficient for pupils to *understand* the content of the language lessons is controversial when considered against the theory of information processing (see section 2.4). It seems that these teachers were not aware of the importance of production and communication for SLA. Teachers involved in the project were all enthusiastic about an early starting age, because children learn the foreign language so easily and are enjoying the CLIL lessons (see appendix B, 16, 19). Theories differ as to

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which advantages young age has in the language acquisition process: some argue for a critical period in which the child can learn the language more naturally, others argue that a young age is not necessarily beneficial for SLA (see section 5.1.3). Regarding the amount of input, a younger starting age can be advantageous because the pupils can receive more exposure (cumulative amount of exposure can be higher). In other words, young starters have more time to be exposed to the language. Not many teachers have mentioned this idea of cumulative amount of exposure during the interviews (they may not even be awre of it), but this did not diminish on their enthusiasm for the young starting age.

6. Discussion

6.1 Discrepancies between what theory suggests and practice at the primary schools

The sections above illustrated that amount of input is important for SLA, sometimes even more so than starting age (although it should be noted that these interrelate). The proposed 4 hours per week do not seem to be excessive considering what research has shown on the issue of amount of input. During the visits at the participating schools, however, it turned out that hardly any school could arrive at the 4 hours that are set as a goal for this project. This means that the *amount* of input is not only minimal (see section 3.3)
but differs from school to school also (see tables 4 and 5). Schools find it very hard to implement vvto and CLIL in their curricula, and therefore more than 15% vvto might not (yet) be feasible. This can change but more resources (i.e., time) and experience is needed to enable schools to get the programme truly running.

Concerning the quality of the input, it is important that the teacher has a high enough level of proficiency to teach CLIL lessons, since with CLIL the emphasis is on a topic other than language, and the teacher needs to draw the pupils' attention to the topic by

adequate language use. Therefore, a minimum requirement of B2 level is reasonable, because someone with a B2 proficiency level is expected to "Ha[ve] a sufficient range of language to be able to give clear descriptions, express viewpoints and develop arguments without much conspicuous searching for words, using some complex sentence forms to do so" (see appendix A). So a teacher with B2 level can provide the pupils with input that enables adequate conversation skills as well. A C1 level might give the opportunity, though, to have more natural interaction in the classroom. Someone with a C1 proficiency level is expected to "[…] select an appropriate formulation from a broad range of language to express him/herself clearly, without having to restrict what he/she wants to say" (see appendix A). C1 level implies that the speaker is not restricted in what (s)he wants to say, while the requirement for B2 only states that the speaker can provide arguments without much searching for words. From this, B2 level seems to be sufficient for primary school foreign language teaching, whereas C1 would provide input that is richer than that of a B2 speaker.

Conversation and interaction can be beneficial to learners. As they interact to acquire new knowledge, their attention is automatically focused on the subject. So, as described above 1) the proficiency level of the interlocutor (i.e. teacher) is of importance and 2) it is important that the teacher and the pupil *have* sufficient opportunities for meaningful conversations (see also section 2.3). In relation to this, it would be advisable to provide teachers with some background knowledge on the SLA process and the reasons why for example interaction and CLIL are means that enhance the SLA process.

The help of a native speaker may be required in order to support teachers whose proficiency level is not (yet) B2 (CEFR) or, maybe in the future, if the goal is for pupils to acquire adequate pronunciation skills (see section 4.1.2).

The overall impression of the observers is that in classroom practice the focus is more on comprehension than on production, as if one has to fully understand and comprehend a

language before using it. In the vvto and CLIL context, this can be changed. An early start provides opportunities for informal instruction which stimulates production and enables children to participate in CLIL activities.

Differently from this natural way of acquiring new knowledge in the L2, there are studies that suggest that formal instruction can help students best to acquire the language (see VanPatten; de Jong). Although these studies refer to contexts in which age is higher than primary school age (so these results cannot be generalised to primary school), the results of these studies give reason to study the different needs for different age groups in relation to the starting age. Subsequently teachers can be made aware of the importance of the different needs for input, i.e. how different stages of language development ask for different types of input. In sum, the goals of the 15% project are reasonable, although more research on CLIL in a primary school context is needed on the effects of amount of input, starting age and the quality of the input provided by the teacher.

6.2 Recommendations and suggestions for future research

Larson-Hall suggests in the conclusion to her paper to start SLA as young as possible, with as many hours of input as possible (even though she found that even minimal input could be beneficial). As mentioned above (see section 5.1) it would first and foremost be worthwhile for the future of vvto and CLIL to study the effect of quantity and quality of input in a *CLIL context at primary schools.* This is because CLIL is different from traditional language teaching in that it is not primarily focused on the language but around a topic. Therefore the cognitive processes (see section 4.1.3) are different, as are factors such as feedback, interaction etc. (see section 2.3).

Thus, future research should try to disentangle the variables of quantity and quality of the input from age in primary school settings. This way, requirements for the vvto combined with CLIL can be more accurately defined and applied in the future. In order to

study the effects of quality, quantity and age in SLA at primary schools, it would be very advantageous for the interpretation of the results the group of schools investigated are as homogenous as possible i.e. aim at the same number of hours per week, better testing and training of teachers' proficiency, and exchanges of means and materials. This will bring along many practical issues, and obviously for the sake of the project and the future of language education it will be vital to work in a careful fashion.

If the results of these proposed studies provide significant evidence that is in line with the suggestions made in the discussion here, it would be advisable to further increase the number of hours per week and to aim at a C1 level (CEFR) for teachers who teach by means of CLIL, provided that this is achievable for schools. Although this might currently not be the case, with time, support and resources it may be in the future.

7. Conclusions

Several conclusions can be drawn from the discussion above. The first conclusion that can be drawn is that the goals for the 15% vvto project appear to be reasonable given what SLA theoretical thinking reports on quantity and quality of input and starting age. Even though 4 hours of input per week is little (a minimal input setting) it can be a satisfactory amount of time to start this new form of language education for primary schools in the Netherlands. Further, by starting early, the amount of input pupils receive can be built up over the years. The B2 level (CEFR) is a minimal requirement for teachers to be able to provide education using English. As with the amount of input, this level may be a good starting position, although it would be preferable to eventually require a C1 level. Teachers should be aware of the quality of the input they provide (i.e. their own language proficiency and the materials they use in class) in order to be able to provide lessons that suit the needs of their class. Nonetheless, these goals can be further improved in the future.

To require more hours and a higher teacher´s proficiency level in the current situation would not be realistic due to the infancy of this new phenomenon in primary education and the fact that schools already struggle to achieve the current goals. Optimising all these factors does, however, not guarantee successful SLA. Optimising the vvto and CLIL education do not guarantee for individual success of a primary school pupil learning a second language either, since there are many more factors that influence the language learning process, for example input at home, language environment, motivation, cultural issues etc. Also, an early start does not guarantee successful SLA. Consequently, more research must be done in this specific area of CLIL in a primary school context. Research may shed light on the interrelationships between the variables in the specific context of CLIL in primary education in the Netherlands.

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Appendices

Appendix A: CEFR- general proficiency levels

	GENERAL LINGUISTIC RANGE
C2	*Can exploit a comprehensive and reliable mastery of a very wide range of language to formulate* *thoughts precisely, give emphasis, differentiate and eliminate ambiguity. No signs of having to restrict what he/she wants to say.*
C1	*Can select an appropriate formulation from a broad range of language to express him/herself clearly, without having to restrict what he/she wants to say.*
B2	*Can express him/herself clearly and without much sign of having to restrict what he/she wants to say.*
B2	*Has a sufficient range of language to be able to give clear descriptions, express viewpoints and develop arguments without much conspicuous searching for words, using some complex sentence forms to do so.*
B1	*Has a sufficient range of language to describe unpredictable situations, explain the main points in an idea or problem with reasonable precision and express thoughts on abstract or cultural topics such as music and films*
B1	*Has enough language to get by, with sufficient vocabulary to express him/herself with some hesitation and circumlocutions on topics such as family, hobbies and interests, work, travel, and current events, but lexical limitations cause repetition and even difficulty with formulation at times.*
A2	*Has a repertoire of basic language which enables him/her to deal with everyday situations with* *predictable content, though he/she will generally have to compromise the message and search for words.*
A2	*Can produce brief everyday expressions in order to satisfy simple needs of a concrete type: personal details, daily routines, wants and needs, requests for information.* *Can use basic sentence patterns and communicate with memorised phrases, groups of a few words and formulae about themselves and other people, what they do, places, possessions etc.* *Has a limited repertoire of short memorised phrases covering predictable survival situations; frequent breakdowns and misunderstandings occur in non-routine situations.*
A1	*Has a very basic range of simple expressions about personal details and needs of a concrete type.*

Source: CEFR (p 110)

http://www.coe.int/t/DG4/Portfolio/documents/Framework_EN.pdf

Appendix B: full report

Available via www.europeesplatform.nl