



**International
School of London
Surrey**

Research Institute

A Pilot Research Project by Young People

Do the languages that multilingual students in an international school are exposed to affect the languages they think in?

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The ISL Surrey Research Institute is an innovative initiative that gives Grade 8 and 9 students the opportunity to conduct cutting edge research. The pilot project for 2016-17 focused on multilingualism, a key area of strength and expertise within our school community.

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Contents

1. Introduction	4
2. Literature Review	5
3. Methodology	7
3.1 Developing the Research Question	7
3.2 Research Sites and Participants	7
3.3 Piloting and Data Collection	8
3.4 Data Analysis	10
3.5 Ethical Considerations	11
4. Findings	12
4.1 Questionnaire	12
4.2 Interviews	18
5. Discussion	20
6. Conclusions and Recommendations	21
7. Works Cited	23
8. Appendices	24
8.1 Survey Monkey Questionnaire	
8.2 Interview Guide	
8.3 Interview Consent Form and Information Sheet	
8.4 Timeline of Research Stages	

1. Introduction

This piece of research was undertaken by a group of student researchers in Grades 8 and 9 in an international school in England. The purpose of the research was to gain an understanding of the academic research process while also undertaking and producing a piece of original research. The teachers facilitated and supported us during the different stages of our work but the whole process was led by us. We believe that this format of working to produce a piece of research is unique in our age group and it was a pilot project for our school.

The research had a focus on multilingualism. The topic was chosen because our two schools are multilingual and language rich environments where every student is considered to be an ‘expert’ in their own language use and experience. To our knowledge not much research exists in the field of multilingualism within an international school setting and there is a lack of research using teenagers as the sample group.

The research question was devised by us and agreed on us a group. We started this process with a number of different questions that we were interested in. After reviewing these questions against the criteria we used (Concise, Doable, Relevant, Clear, Reliable and Focused) and referring to literature, we decided to focus on the following question: ‘Do the languages that multilingual students in an international school are exposed to affect the languages they think in?’

This research is important in a number of ways. Firstly, as mentioned above, there is a lack of research into multilingualism and teenagers. Secondly, not much research has been done to link exposure to languages and what language a student thinks in. This research attempts to find a link between these things using original data. The research report incorporates a literature review, the research methods that we selected, an analysis of the data and a discussion of our findings along with the limitations of our study and recommendations for future projects.

2. Literature Review

Our teachers guided us through a range of literature on our topic, from which we selected the most relevant for our research. First we looked at Carder's (2007) book 'Bilingualism in International Schools' which was the closest to the research we wanted to conduct. The book is about different students' language journeys and experiences. This book is very close to us because we are all in an international school environment and most of us have experienced different languages. It inspired us to write our own 'Language Journey', which was about countries we have lived in and what languages we were exposed to in each country. We all wrote one piece and read each other's pieces to give us more inspiration for our research topic. We also used Baker's book on bilingualism (2011) for a study activity which required us to create a visual timeline of our language journey since birth. Both exercises were a good guide to creating our research question.

Going deeper into the literature, we discovered that bilinguals tend to count in the language they learned counting in (Pavlenko, 2015). This corresponds to our findings and some of the questions that we put into our own questionnaire were based on this blog. Pavlenko suggests that "the language bilinguals count in may depend on the language of early schooling," and that some bilinguals "prefer to think of mathematical relationships in the language of math".

In his blog, Grosjean (2011) explains how some linguists believe that there is a kind of 'pre-linguistic thinking' that comes before a person speaks in a language. The main topic of the blog is dreaming and language, and this was the main influence for one of the topics of our questionnaire (see Appendix 1). The conclusion of the research is that "depending on the situation and the person we are dreaming about, we will use one language, the other, or both".

Dewaele's article (2007) on mental calculation is connected to the first two blogs as they are all about thinking in different languages. Dewaele's research was a guide to one of the themes in our questionnaire and interviews. The question the author asked was: "Is the L1 the preferred language for mental calculation for all multilinguals?" The results in the research conducted through an online survey with adults show that L1 is indeed the most preferred language however there was no clear explanation about why the participants chose this. The web questionnaire (Dewaele and Pavlenko, 2001) as used in Dewaele's study (2007) guided us during the process of drafting our own questionnaire.

'The Blackwell guide to research methods in bilingualism and multilingualism' by Li Wei and Moyer (2008) supported us with the topics for our questionnaire. This book is about different types of research on bilingualism and multilingualism, and it is also a guide for using different research methods when researching this topic. In the next chapter we explain how we designed our methodology.

3. Methodology

3.1 Developing the Research Questions

We began by discussing topics regarding multilingualism. We looked at different research papers to give us inspiration. Then, we brainstormed research questions that we could use, based on these criteria: concise, doable, relevant, clear, reliable and focused. We “funnelled” our initial ideas until we had four main questions. Funnelling is a way of narrowing down multiple ideas, until you have the most relevant option. This idea came from an exercise we did during a research session, recommended by Kellett (2005). We discussed what would fit the criteria best, and then we reduced our options again. We were left with two questions, and then chose the most doable option. We then had to start drafting and improving our original question, “How do different situations affect the language a multilingual student thinks in?” to “Do the languages that multilingual students in an international school are exposed to affect the languages they think in?” This came from many re-edits and drafts, to get the most concise and focused question.

3.2 Research Sites and Participants

The research was conducted in ISL London and ISL Surrey. Both schools have a Mother Tongue Programme encouraging students to use and academically develop their L1. The following table shows the number of languages and range of nationalities in each school.

Locations	Languages taught	Student nationalities
ISL London	20	52
ISL Surrey	20	28

Table 1: Languages and student nationalities in each school

Data source: ISL Schools Websites, June 2017

Our research participants were multilingual secondary students (aged 11-16).

3.3 Piloting and Data Collection

We decided to collect data through an online survey in both schools and six follow-up interviews in one of the schools. We completed three drafts of the survey, each time cutting out irrelevant questions, adding necessary questions and moving questions around. After completing our first draft, we piloted it with a Grade 5 class, ages 10-11 as a paper questionnaire. This age group was chosen as they were close in age to the sample group. After collecting feedback from the pilot group, we improved our questionnaire. We created an online survey on Survey Monkey as it is more accessible to participants, and we were able to receive as many responses as possible. After creating the online survey, we sent it again to our pilot group. After they completed it, we re-drafted it and sent it to our research participants. We needed to receive permission from the head of each school or “gatekeepers”, who allowed us to send the survey to the students. In total, we had 49 respondents, though only 39 completed the survey in full. This was a survey designed for a larger population size, but we had enough participants to analyse patterns and search for findings.

We had agreed that interviews would give us a deeper understanding of some of the areas from the questionnaire. We decided that the best type of interview to conduct would be semi-structured, so that we could utilise a guideline, though still being able to be flexible. We created an interview guide (see Appendix 2) giving us categories to discuss: Social media, Preferences, Mental maths and Dreams. Under each category were suggested questions, to aid the interviewers if necessary. This was drafted multiple times, in order to have the best and most useful guide. We agreed on having three interviewers conducting two interviews each, with students in grade 6, 7, 8, 9 and 10. Before conducting the interviews we gave the interviewees consent forms, telling them what their role was, why they were needed, and what they would be doing. We did a pilot within the group, as we were under a severe time constraint. We decided the interviews would be around 5 to 10 minutes, since the students were young and may not have a long attention span.

Our original plan was to audio record all six interviews as we could then transcribe them. When we started conducting the interviews, some of the participants said that they were not comfortable with being recorded. We respected this and tried to find solutions (taking notes and texting). It resulted in us having four audio recorded interviews, one hand written interview and one interview done via text. There were pros and cons for each, see Table 2 below.

Type of interview recording	Pros	Cons
Audio Recorded	<ul style="list-style-type: none"> • Easy to ask follow-up questions • Ask to be more clear • Easy to express ideas/thoughts • Pay attention to participant 	<ul style="list-style-type: none"> • Participant cannot reflect as easily on responses • Not always the best time to interview • Sometimes difficult to hear what they say
Handwritten	<ul style="list-style-type: none"> • Can double check what they said • Slower, so participant has chance to reflect 	<ul style="list-style-type: none"> • Cannot pay as much attention to participant • Not always reliable • May miss important details • Words of participant are summarised/changed
Texting	<ul style="list-style-type: none"> • Participant can reflect on responses • Do it in their own time • Can come back to it and carry on if necessary • Interviewee can think about questions asked • If person is far away, and difficult to reach • Easy to transcribe 	<ul style="list-style-type: none"> • Difficult to ask follow-up questions • Difficult to explain a question • Difficult to interpret what they said, as texting is slow • Slow

Table 2: Types of interview recording

The variety of interviews was not planned, but gave us insight into the pros and cons described in the table above. Looking at the Table 2, the least effective was handwritten, as it did not give much reliable accurate information. Texting was useful as it allowed the participant time to reflect on their answers, and could be done in their own time, though responses were not always very detailed as texting is slow, and people get impatient. Audio recorded interviews are effective when the participant has time, but if rushed, does not work at all. The next stage was transcribing

interviews. This stage was a very simple one, though long. Texted interviews were the easiest to transcribe, and we only had brief notes from the interview which was not recorded.

3.4 Data Analysis

We transcribed the four audio-recorded interviews and put the interview conducted by texting into the same format. We also used the handwritten notes from the interview which was not recorded. We went through the interviews and coded them using categories that emerged from multiple readings of the transcripts. Next, we compared the categories across all interviews and decided on the main overall categories and sub-categories.

The main categories were: social, preference, emotions and environment. We created coloured codes for the categories, which were then used for analysing the transcripts. We went through the interviews again, highlighting anything that matched its corresponding category. A margin was placed on the right hand side of the page, so notes could be recorded. They were analysed in groups searching for anything unusual, patterns and quotes to support our findings. The quotes and findings were put into a table for ease of analysis.

We exported the questionnaire data from Survey Monkey to Microsoft Excel and looked at the entire spreadsheet to get an overall picture of the results. After a group discussion and with support of our teachers, we decided which parts of the questionnaire we needed to use, and looked for patterns and findings in order to conduct a statistical analysis and produce graphs.

3.5 Ethical Considerations

We needed to be sure we were ethical in conducting our research, and were aware of the ethical guidelines. It was necessary to consider confidentiality, anonymity and include questions that would not offend or upset someone, including the right to withdraw from the questionnaire. The Ethics Panel (two teachers from the school) was a valuable part of the process. It made sure that everything written and sent out was ethical, so not to harm or insult anyone. The Panel approved the questionnaire (Appendix 1), the methodology, the consent form and the information sheet (Appendix 3) for interview participants. See Appendix 4 for a timeline of the research stages. In the next section we outline the main findings.

4. Findings

4.1 Questionnaire

The survey had 34 questions and there were 49 responses from two schools. 39 responses were complete. 23 of the participants were male, 14 were female and 2 did not want to state their gender. The age range was 5 years, meaning that the youngest participant was 11 and the oldest was 16. The pie chart below shows how many languages the participants speak.

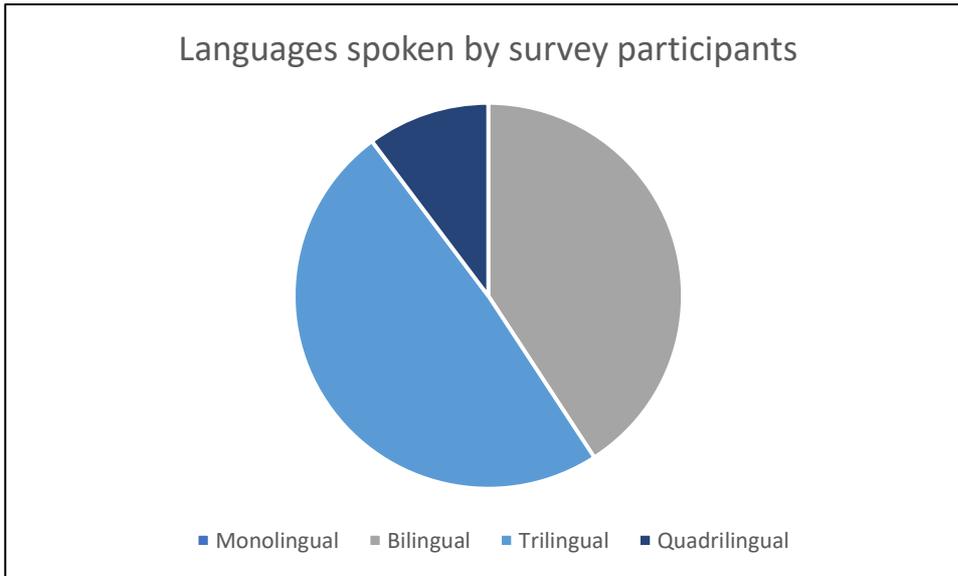


Figure 1: Languages spoken by participants

This pie chart shows that 10% of the participants speak 4 languages, 49% speak 3 languages and 41% speak 2 languages. All participants speak two or more languages.

One of the questions asked the participants to score the proficiency in L1, L2, L3 and L4 from 1 (a few words) to 5 (fluent) on 4 variables: reading, writing, speaking and listening. The average of the results was:

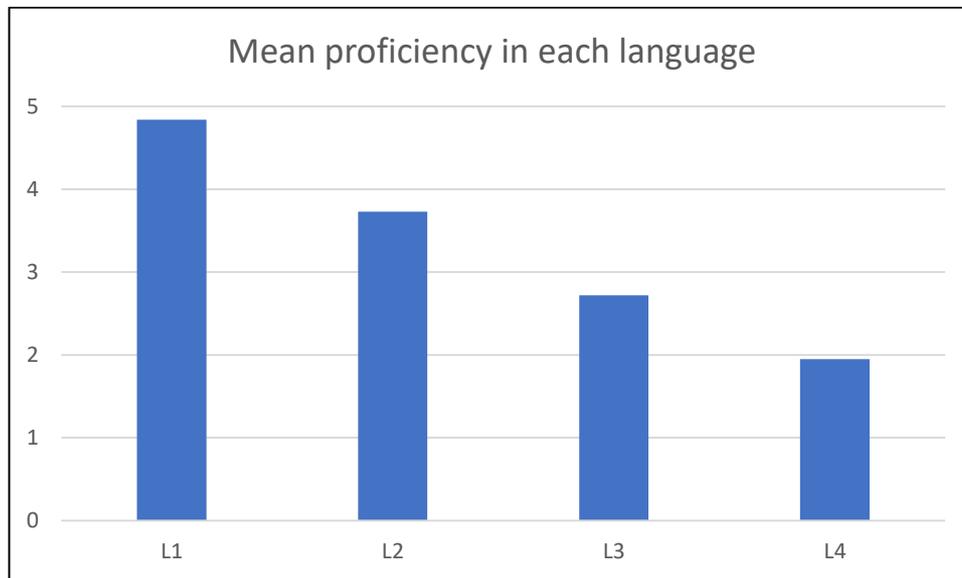


Figure 2: Mean proficiency in each language

Figure 2 shows the proficiency of L1, L2, L3 and L4. These self-reported responses demonstrate that the participants believe that their strongest language is L1, however L2 is also very strong. This supports the earlier finding that they speak more than one language (shown in Figure 1).

Another question was related to age exposed to each language. The question was about what age the participants were exposed to a language and at what age they started studying it. Figure 3 shows the results:

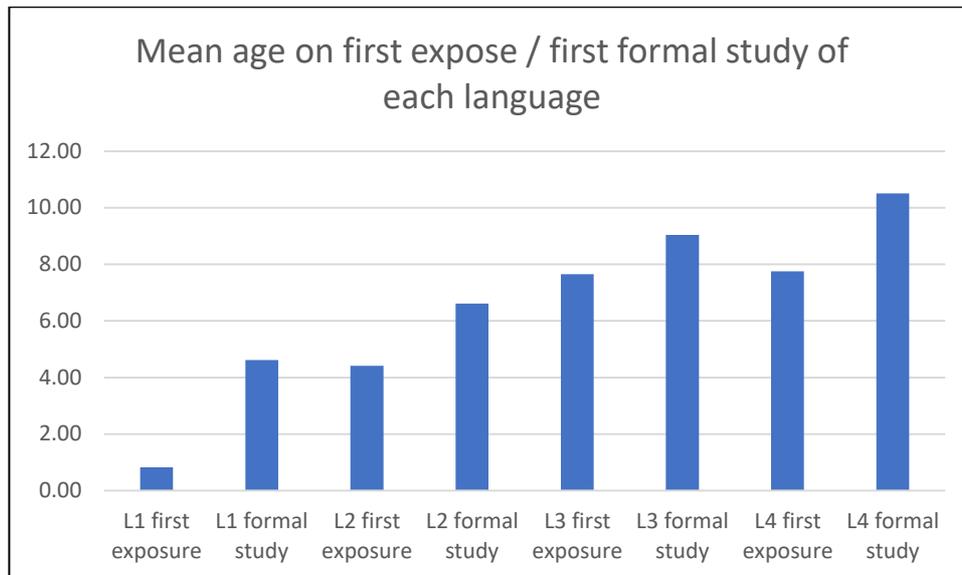


Figure 3: Mean age on first expose / first formal study of each language

The data shows that on average most of the participants were exposed to L1 at birth. Then at the average age of 4 they started studying L1 and had first exposure to L2. The average age the participants were first exposed to and started formally studying their languages links with the previous graph (Figure 2). It suggests that the longer the participant has been exposed to and has been formally studying a language, the higher their proficiency is in that language.

There was also a question based on preferred language for different interactions and activities. Different situations were given to the participants asking them what language they would normally use in a particular situation by using the scale 1 (never use) to 5 (always). See Figure 4 below:

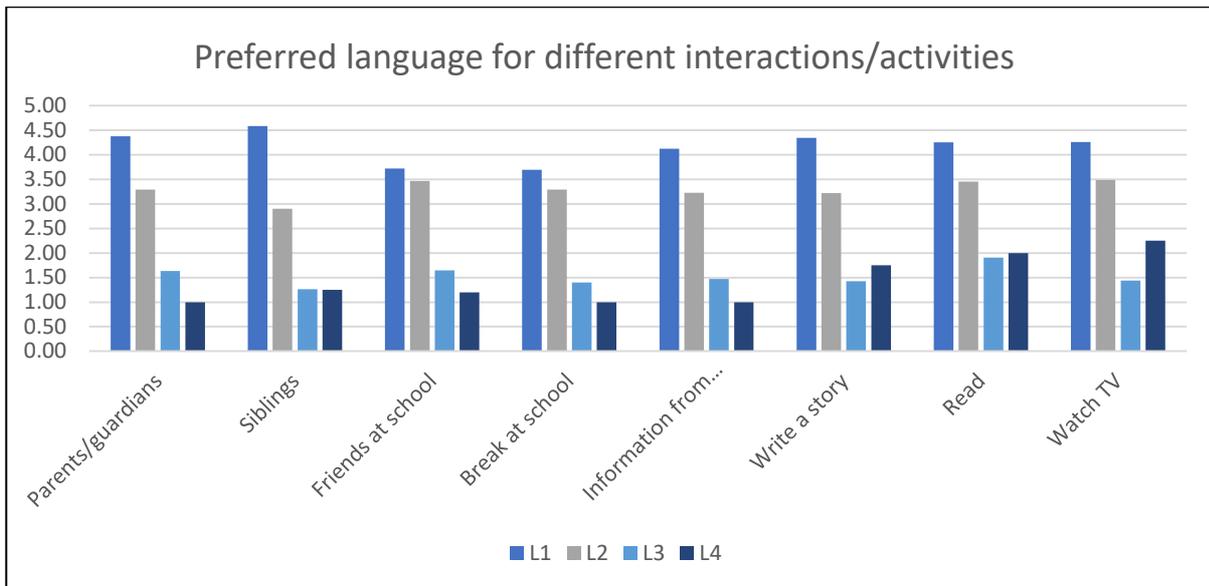


Figure 4: Preferred language for different interactions/activities

This graph shows the preferred language for daily interactions and activities. Once again it shows that L1 is the preferred and most used language for most participants. However, in some activities (break at school and friends at school), L2 also has a high preference for most participants. The graph can be split into three categories. The first four are related to social interactions and has a clear pattern. It shows that L4 is never used, L3 is rarely used, L2 is used often with friends at school and L1 is used more often with family. The next two activities can be put in the category of school work. This category shows that L1 and L2 are used often, while L3 and L4 are barely used. The last two activities can be put into a category of leisure. It shows that L4 is used more often than L3, and L1 and L2 are used more equally. Overall, in all categories L1 and L2 are used more often than L3 and L4.

The following questions focus on what languages participants think in during different lessons at school. The format of these questions was the same as in the previous section, thus, the data is organized in the same way, see Figure 5.

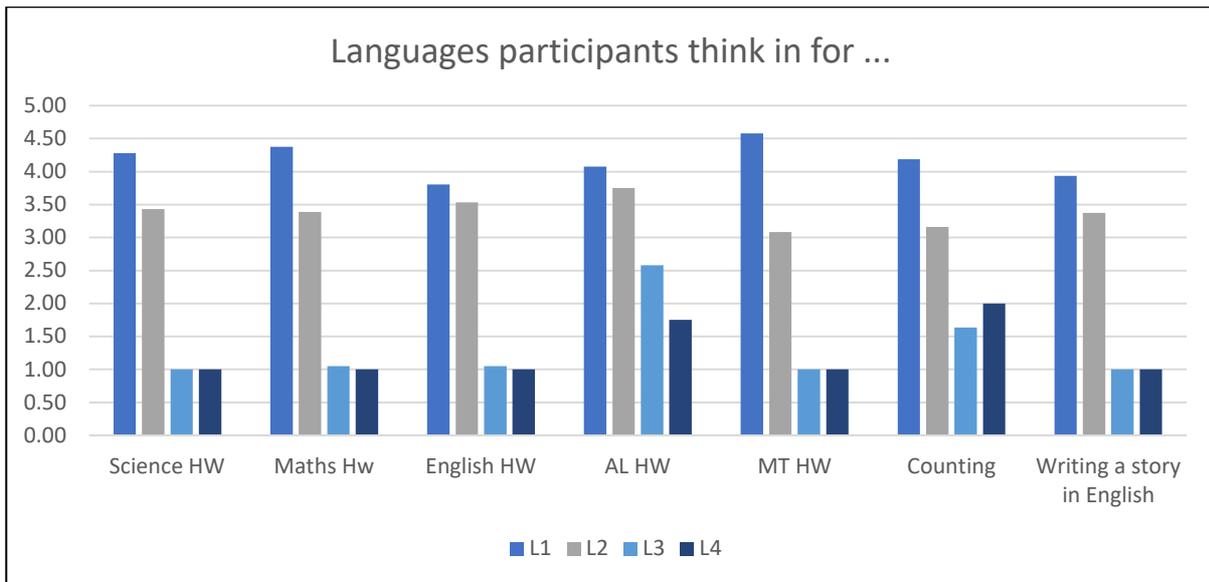


Figure 5: Languages participants think in for different activities

This graph is about what language participants think in during their school work. As in the previous graph, participants most commonly think in L1. On the other hand, it is interesting to see that participants think in L2 almost as much as L1 when they are doing English homework. This might suggest that most participants' L2 is English. The data shows similar findings when the participants write a story in English. Another interesting finding in this graph is that, when participants do additional language homework, they think in L3 more often. This suggests that L3 is an additional language they are studying in school (Spanish or French).

The last questions were about social media, anger and dreaming. The format of these questions were the same as the previous ones, thus, the data is organized in the same way, see Figure 6:

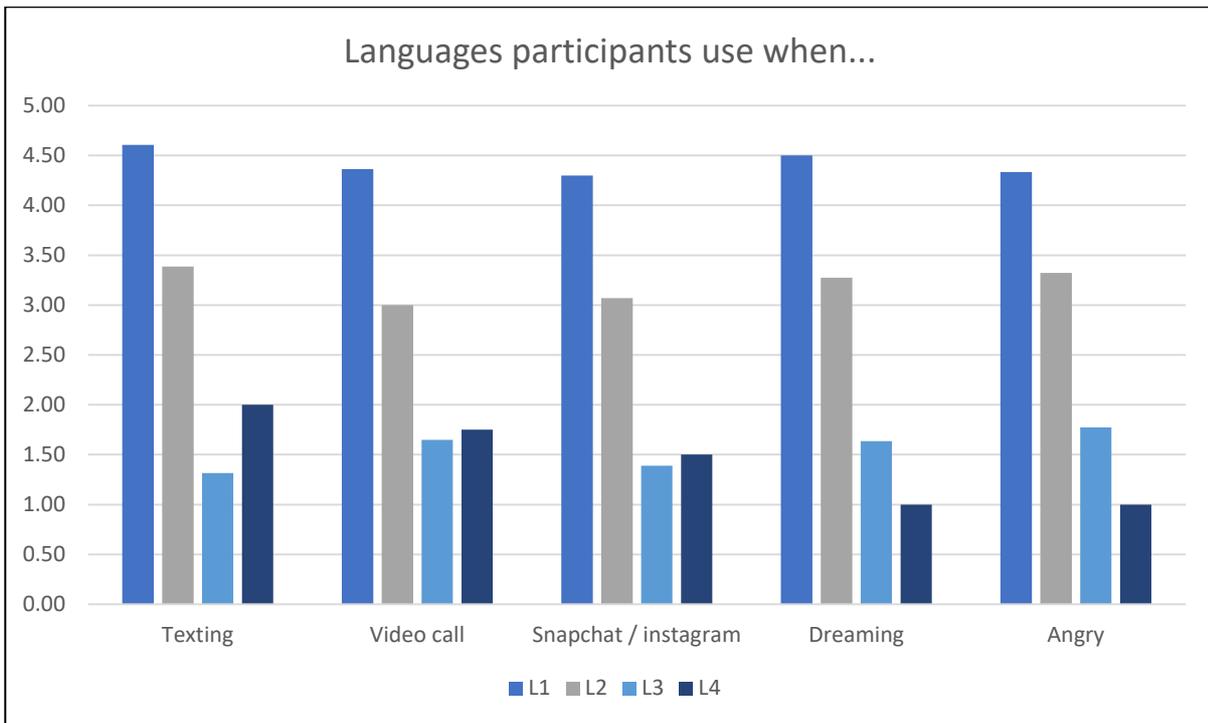


Figure 6: Languages participants use for different activities

This graph shows which language is used when the participants use social media or express emotions. All of them clearly show that L1 is the most used and that L2 is used sometimes. This graph can be split into two categories, social media and subconscious emotions. The first three questions are in the social media category. This shows L1 is used most often, followed by L2 and that L4 is used more often than L3. This might suggest that L3 is a language the participants learn at school, while L4 is a language they use to interact with others and they use for social purposes. The other category is about subconscious emotions, dreaming and anger. It shows that L1 and L2 are used more often. This might suggest that participants are more proficient in L1 and L2 than L3 and L4, because dreaming and anger are subconscious, meaning that the participants express it without thinking about it. Looking at these findings, there are obvious correlations between language proficiency, thinking and language use. Due to technical issues and time constraints, we were not able to produce the correlation table which would help our analysis.

4.2 Interviews

The following analysis shows the findings from six interviews in the following categories:

Emotions: We asked the interviewees about the languages in their dreams and found that dreams were typically in the interviewee's L1. Some of the interviewees said that it depended on who was in their dream, and what the situation was. If the people in the dream speak English in real life, then the dream would be in English. From this data we can see that when they are unconscious they tend to think in their L1. When it comes to emotions, anger is usually in English, "When I am angry I do speak in English." (Interviewee 4, Grade 6 student)

Social: All of the interviewees use English in different ways on social media. Interviewees 1 and 4 use their L1 online.

"I use both (languages) my grandparents they have a Facebook family page so I have to use Persian to speak and write on there, but when I am at home I usually use social media in English or when I am talking to my friends, but if I am writing about a Persian celebrity I might switch to Persian." (Interviewee 1, Grade 10 student)

All of the interviewees (apart from Interviewee 5) said they use English with friends. Interviewees 4 and 6 said they were less proficient in English. Interviewees 2 and 3 only use English in social situations.

Almost all of the participants' parents tend to use L1. This is the main reason why the interviewees use L1 at home. The following participant describes her language choice at home:

"Ever since I was a kid we've had a rule that for every English word we speak we had to put one pound in the saving box. So I prefer to speak Persian with her [mother] and English at school." (Interviewee 1, Grade 10 student)

Environment: Interviewees 1, 2, 3 & 5 said they preferred maths in English. The rest preferred maths in their L1. As one interviewee explained, “Because I have been raised and taught maths in English all my life, I’ve never been taught maths in Dutch.” Interviewees 1 and 3 say that it depends on the language of instruction in the class for mental maths in a classroom setting.

Each of the interviewees were given a short mental calculation to work out during their interview, for example, $2+2+4$. After giving the answer, they were asked what language they were thinking in during the calculation. Findings suggest that most of the interviewees responded that they thought about the calculation in English. Some of them pointed out that the question had been asked in English, which may have influenced their language choice: “Maybe because I’m being asked in English and this whole day I haven’t heard any Japanese, I’m only being talked to today in English.” In contrast, two interviewees responded that they thought the calculation in their L1 but they did not explain why.

For other subjects and classes, Interviewees 6 and 3 prefer to use their L1. Interviewee 3 uses English and their L1.

Preference: Interviewees 1 and 4 prefer to use L1, and Interviewee 2 prefers English in terms of ‘difficulty’, in that they think English is easier than their L1. Interviewee 3 prefers English. This topic was not discussed in the other interviews.

5. Discussion

Every single participant speaks two or more languages, due to the environment they are in (an international school) and the fact that they move between countries. This agrees with students' experiences from Carder's book (2007). Most of the participants were more proficient in their L1, and their proficiency decreases in each subsequent language. This is directly linked to the age they were exposed to the language, and the age they started studying it. The data shows that the younger you are when exposed to a language, and start studying a language, the more proficient you will be when you are older. L1 is generally more preferred, especially when it comes to family activities. When at school, L1 is still the most preferred language, however the difference between L1 and L2 is smaller and they are almost equal in use.

When asked what language the participants think in most, there was a clear finding relating to their L3. Trilingual participants tend to think in their L3 more often when doing additional language homework, meaning that their L3 is most likely the language they are learning in their additional language classes. When dreaming and expressing anger, participants use their L1 most often. This is in line with previous findings by Grosjean (2011) as mentioned in Literature.

The findings of the interviews support the answers from the questionnaire. They believe that they count and do mathematics in the language they were taught in, as was noted by Pavlenko (2015) and Dewaele (2007). Participants also stated that the language they dreamed in depended on the people involved in their dreams, such as friends or family. This was also observed by Grosjean (2011). This is also the case when communicating with friends, it depends who they are talking to. When their friends share their L1, they will speak to them in that language, but when English is the common language, that is what they will use.

There were some surprising findings, for example, L1 was used far more in texting and video calling with family, while we thought English would be more popular. There was a wide variety of languages spoken by students and we found the proficiency table really helped us to understand this.

6. Conclusions and Recommendations

We think this topic is important in an international school so that teachers can understand how students use their languages so they can use different teaching techniques to support them. The schools where the research was conducted encourage students to continue to use their L1 and offers mother tongue classes to support this. This might help to explain the findings which demonstrate a high use of both L1 and L2.

This research also made us think about our own language use and experiences:

“I can personally relate to it [the topic] ... I also understand more about myself because before [this research project] I wouldn't focus on the little things like what languages I thought in or what languages I dreamt in or counted in, but when we started working on this I started concentrating on those little things and it just made me learn more about myself.” (student researcher)

“I don't speak two languages but I used to speak Dutch when I was younger but it's still interesting to know that back then I probably thought the same sort of way but didn't notice it because I was young but it's just really interesting to notice all of these things.” (student researcher)

We reflected on what we have achieved with this piece of research and how we could improve it if we were going to do the same research again. For future projects we would recommend more interviews and more survey responses as the information that we got was quite limited and we

could not get a deeper understanding of certain issues. More teacher involvement might help to get more students to take part in the survey and therefore increase the sample size.

One of the interviews was conducted via text message as the participant did not want to be recorded. While this had its own limitations, it led to a really interesting discussion about technology playing a part in research, and how we students may think of introducing such technology into a methodology. If we were to do the research again, we could conduct more interviews by text message alongside more face to face ones.

This research project had to finish earlier than we originally planned (12 month project reduced to 6 month project) so the time for particular stages in the project (data collection, data analysis) was quite restricted. However, we saw many benefits. Apart from learning about the research process and engaging in real life research, we also made links with other subject areas, for example, lab reports and maths.

We all saw the benefits of working in a group and would recommend that this format should continue rather than students working on their own on an individual piece of research. It was clear that shared workload, different opinions, disputes and disagreements, writing collaboratively, different areas of strength (e.g. some students were very good at statistical analysis, and others were much stronger writers) made the process easier as we could all work to our strengths. It also meant that we could learn from each other which was very important. We were able to explain things to each other if we didn't all understand things. The process of arriving at the Research Question worked well in a group. We were also very proud of the individual contributions we made to the group. This research could be useful to future young researchers, teachers in schools with multilingual students, international schools and university researchers.

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8. Appendices

- Appendix 1 Survey Monkey Questionnaire
- Appendix 2 Interview Guide
- Appendix 3 Interview Consent Form and Information Sheet
- Appendix 4 Timeline of Research Stages

1. About our Survey

The ISL Surrey Grades 8 and 9 Research Institute students are doing a piece of research on what language(s) students in an international school think in. The survey would give us a better understanding of the languages students think in and use in different situations. To our knowledge, this research has not been done in international schools before, so your contribution is valuable.

Completing the survey is voluntary. All the answers will be anonymous and you have the right to withdraw at any time. It should not take more than 15 minutes to complete, but there is no maximum time. If you need help, please ask your teacher.

If you want to find out more about our research, please contact cbrumpton@islsurrey.org.

Thank you for your participation!

2. About you

* 1. Please state your age

* 2. Please state your gender:

3. About your languages

* 3. What languages do you speak?

Language 1	<input type="text"/>
Language 2	<input type="text"/>
Language 3	<input type="text"/>
Language 4	<input type="text"/>

* 4. Score your fluency in each of your languages from 1 (a few words) to 5 (fluent)

	Reading	Writing	Speaking	Listening
Language 1	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Language 2	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Language 3	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Language 4	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

* 5. Which do you consider to be your strongest language?

- Language 1
- Language 2
- Language 3
- Language 4

* 6. Which language do you prefer to use?

- Language 1
- Language 2
- Language 3
- Language 4

Please tell us why

* 7. How old were you when:

	You first started hearing the language around you	You started studying the language at school
Language 1	<input type="text"/>	<input type="text"/>
Language 2	<input type="text"/>	<input type="text"/>
Language 3	<input type="text"/>	<input type="text"/>
Language 4	<input type="text"/>	<input type="text"/>

4. Languages and countries

* 8. What country/countries have you lived in? Start with the country you live in now and then work backwards in time.

Country 1	<input type="text"/>
Country 2	<input type="text"/>
Country 3	<input type="text"/>
Country 4	<input type="text"/>
Country 5	<input type="text"/>
Country 6	<input type="text"/>
Country 7	<input type="text"/>

* 9. How long did you live there?

	How long?
Country 1	<input type="text"/>
Country 2	<input type="text"/>
Country 3	<input type="text"/>
Country 4	<input type="text"/>
Country 5	<input type="text"/>
Country 6	<input type="text"/>
Country 7	<input type="text"/>

* 10. What languages did you use there?

	Language 1	Language 2	Language 3	Language 4
Country 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Country 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Country 3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Country 4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Country 5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Country 6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Country 7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. Language use

* 11. What language(s) do you use when speaking to your parents/guardians?

	Never use	Rarely use	Sometimes use	Often use	Always use
Language 1	<input type="radio"/>				
Language 2	<input type="radio"/>				
Language 3	<input type="radio"/>				
Language 4	<input type="radio"/>				

* 12. What language(s) do you use when speaking to your siblings (including half and step siblings)?

	Never use	Rarely use	Sometimes use	Often use	Always use	No siblings
Language 1	<input type="radio"/>					
Language 2	<input type="radio"/>					
Language 3	<input type="radio"/>					
Language 4	<input type="radio"/>					

* 13. What language(s) do you use when speaking to your friends at school?

	Never use	Rarely use	Sometimes use	Often use	Always use
Language 1	<input type="radio"/>				
Language 2	<input type="radio"/>				
Language 3	<input type="radio"/>				
Language 4	<input type="radio"/>				

* 14. What language(s) do you use during break at school?

	Never use	Rarely use	Sometimes use	Often use	Always use
Language 1	<input type="radio"/>				
Language 2	<input type="radio"/>				
Language 3	<input type="radio"/>				
Language 4	<input type="radio"/>				

* 15. What language(s) do you prefer to use to look up information on the Internet?

	Never use	Rarely use	Sometimes use	Often use	Always use
Language 1	<input type="radio"/>				
Language 2	<input type="radio"/>				
Language 3	<input type="radio"/>				
Language 4	<input type="radio"/>				

* 21. What language do you think in when doing your science homework?

	Never use	Rarely use	Sometimes use	Often use	Always use
Language 1	<input type="radio"/>				
Language 2	<input type="radio"/>				
Language 3	<input type="radio"/>				
Language 4	<input type="radio"/>				

* 22. What language do you think in when doing your maths homework?

	Never use	Rarely use	Sometimes use	Often use	Always use
Language 1	<input type="radio"/>				
Language 2	<input type="radio"/>				
Language 3	<input type="radio"/>				
Language 4	<input type="radio"/>				

* 23. What language do you think in when doing your English homework?

	Never use	Rarely use	Sometimes use	Often use	Always use
Language 1	<input type="radio"/>				
Language 2	<input type="radio"/>				
Language 3	<input type="radio"/>				
Language 4	<input type="radio"/>				

* 24. What language do you think in when doing your additional language homework?

	Never use	Rarely use	Sometimes use	Often use	Always use	I do not study an additional language
Language 1	<input type="radio"/>					
Language 2	<input type="radio"/>					
Language 3	<input type="radio"/>					
Language 4	<input type="radio"/>					

* 25. What language do you think in when doing your Mother Tongue homework?

	Never use	Rarely use	Sometimes use	Often use	Always use	I don't study Mother Tongue
Language 1	<input type="radio"/>					
Language 2	<input type="radio"/>					
Language 3	<input type="radio"/>					
Language 4	<input type="radio"/>					

* 26. When you are counting or doing mental maths, what language do you think in?

	Never use	Rarely use	Sometimes use	Often use	Always use
Language 1	<input type="radio"/>				
Language 2	<input type="radio"/>				
Language 3	<input type="radio"/>				
Language 4	<input type="radio"/>				

* 27. When you are writing a story in English, what language do you think in?

	Never use	Rarely use	Sometimes use	Often use	Always use
Language 1	<input type="radio"/>				
Language 2	<input type="radio"/>				
Language 3	<input type="radio"/>				
Language 4	<input type="radio"/>				

* 28. What language do you dream in?

	Never use	Rarely use	Sometimes use	Often use	Always use	I do not remember my dreams
Language 1	<input type="radio"/>					
Language 2	<input type="radio"/>					
Language 3	<input type="radio"/>					
Language 4	<input type="radio"/>					

* 29. What language(s) do you watch YouTube in?

	Never use	Rarely use	Sometimes use	Often use	Always use	I do not have/use YouTube
Language 1	<input type="radio"/>					
Language 2	<input type="radio"/>					
Language 3	<input type="radio"/>					
Language 4	<input type="radio"/>					

* 30. What language(s) do you think in when you text?

	Never use	Rarely use	Sometimes use	Often use	Always use	I do not have/use a mobile
Language 1	<input type="radio"/>					
Language 2	<input type="radio"/>					
Language 3	<input type="radio"/>					
Language 4	<input type="radio"/>					

* 31. What language(s) do you think in when you call/videocall?

	Never use	Rarely use	Sometimes use	Often use	Always use
Language 1	<input type="radio"/>				
Language 2	<input type="radio"/>				
Language 3	<input type="radio"/>				
Language 4	<input type="radio"/>				

* 32. What language(s) do you use when you use Snapchat and Instagram?

	Never use	Rarely use	Sometimes use	Often use	Always use	I do not have/use Snapchat and/or Instagram
Language 1	<input type="radio"/>					
Language 2	<input type="radio"/>					
Language 3	<input type="radio"/>					
Language 4	<input type="radio"/>					

* 33. What language(s) do you use when you Tweet?

	Never use	Rarely use	Sometimes use	Often use	Always use	I do not have/use Twitter
Language 1	<input type="radio"/>					
Language 2	<input type="radio"/>					
Language 3	<input type="radio"/>					
Language 4	<input type="radio"/>					

* 34. What language(s) do you use when you are angry?

	Never use	Rarely use	Sometimes use	Often use	Always use
Language 1	<input type="radio"/>				
Language 2	<input type="radio"/>				
Language 3	<input type="radio"/>				
Language 4	<input type="radio"/>				

Appendix 2

Interview Guide

Opening and Introduction

Establish Rapport

My name is _____ I thought it would be a good idea to interview you (SAY WHY)...

Purpose

I would like to ask you some questions about (SEE TOPICS BELOW) ...in order to learn more about (WHAT)

Use of information / project SEE INFO SHEET / QUESTIONNAIRE INTRODUCTION

Confidentiality / right to withdraw

SEE INFO SHEET / QUESTIONNAIRE INTRODUCTION

Time

The interview should take about...

Ask permission to audio record the interview

Transition to the next topic Let me begin by asking you some questions about

Topic 1: Language preference

Questions about topic:

1. What language do you prefer to use the most?
2. Why?
 - a. What language do you prefer to use when talking to parents?
 - b. What about when talking to your friends?
 - c. What about when in different environments, such as school, in a public place and home?

Transition to the next topic:

Topic 2: Social Media

Questions about topic:

1. What language do you prefer to use on any social media platform?
2. What affects your preference of language (e.g. when watching a program...)?
3. If you have a friend that speaks the same language as you on social media, what language would you use? (referring back to languages they had in their survey)

4. Does your language preference change with different social media platforms?

Transition to the next topic

Topic 3: Emotions, Mood and Dreams

Questions about topic:

1. Do you think in a different language depending on your mood?
2. If so, can you give us examples (mention anger)?
3. What languages do you dream in?
4. Depending on what type of dream you are having (nightmare, lucid dreams...) do you dream in a different language?
5. Do you dream in one language more often than others?

Transition to the next topic:

Topic 4: Mental Maths

Questions about topic:

1. Do you enjoy studying mathematics?
2. In which language is it easier for you to count (out loud) in?
3. In which language do you think about first when I ask you (insert your own math question)?
4. When studying maths, which language do you think, talk and explain in?

Closing

Is there anything else you think would be helpful for me to know?
I appreciate the time you took for this interview.

Thank you!

Appendix 3

Information Sheet and Consent Form

Do the languages that multilingual students in an international school are exposed to affect the languages they think in?

You are being invited to take part in a research project. Before you decide whether to take part it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Please ask me if there is anything that is not clear or if you would like more information.

What is the purpose of this research?

We are doing research on what different factors may affect what language a multilingual secondary student in an international school thinks in. In this interview there will be questions about certain topics that were too complicated to put in the online questionnaire. This interview is to help us further understand how multilingual secondary student in an international school think in different languages. To our knowledge, this research has not been done in international schools before, so your contribution is valuable.

Why have I been chosen?

You have been chosen because you are a multilingual student aged 10-17 at ISL Surrey.

What do I have to do?

You will be interviewed by one of the researchers involved in this research about topics related to our research. The data will help us answer the research question. The interview will take around 10 minutes. A convenient time and place will be agreed with you.

Do I have to take part?

Not if you don't want to – it is completely voluntary. If you do decide to take part you will be given this information sheet to keep and asked to sign a consent form. You can still withdraw at any time and you do not have to give a reason.

What are the possible disadvantages and risks of taking part?

No risks are anticipated from taking part in this study.

What are the possible benefits of taking part?

There are no material benefits (such as payment or gifts), though I hope that you will find the process interesting and enjoyable. The study results be shared with you at the end of the school year

Will my participation be kept confidential?

Absolutely. Everything you say in the interviews will be kept in strict confidence, as will any other personal information. When we write our report (or any other publications, such as articles or presentations) your name will be removed.

Will I be recorded, and how will the recordings be used?

If we have your consent, the interview will be recorded on an audio file so that your answers may be analysed by the researchers. Once the audio data is used, it will be deleted.

Who is organising the research?

Students from Grades 8-9 (members of the Research Institute at ISL Surrey) are conducting the research guided by Ms Clare Brumpton and Ms Mirela Dumic. There is also a professional researcher who is guiding the researchers. An Ethics Panel makes sure the research is done fairly and ethically.

Contact for further information

The main contact for this research is:

Ms Clare Brumpton (cbrumpton@islsurrey.org)

Many thanks for taking part in our research project. Please ask if you have any questions.

16 May 2017

Do the languages that multilingual students in an international school are exposed to affect the languages they think in?

CONSENT FORM

	Please tick ✓ next to the statements you agree to:
I confirm that I have read the information sheet (dated 16 May 2017) explaining the research study and that I have had the opportunity to ask questions about it.	
I understand that I do not have to take part in the research study and I can drop out at any time without giving a reason and without there being any problem.	
I agree to take part in: - An interview lasting around 10 minutes	
I agree for my contributions to be included in research reports	
I understand that my name will not appear in any published study or presentation.	
I agree to take part in the research activities described above and will inform Ms Clare Brumpton (cbrumpton@islsurrey.org) if my details change or if I wish to withdraw.	

Name of participant:

Participant's signature and date:

Name of researcher:

Researcher's signature and date:

Appendix 4

Timeline of research stages

Research Question and Literature	November-January
Ethics and Consent Form	February / March
Produced paper draft questionnaire	March
Paper survey Pilot 1 (Grade 5 students)	April
Online survey Pilot 2 (Grade 5 students)	April
Online survey sent out with Ethics Panel approval	May
Interview guide draft	May
Interview Pilot (Grade 8-9 students)	May
Interviews (Grade 6-10 students)	May
Analysing interviews	May / June
Findings from interviews	May / June
Analysing questionnaire	May / June
Findings from questionnaire	End of May – early June
Write - Up	Mid-End June