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**Study:** *Literacy and Numeracy for Mathematics Teaching in Ireland*

**Interview:** *Focus Group Interview post-survey & pre-workshop*

**Date:** *23rd January 2017*

*Please note:*

1. ***R*** *represents the initial for the researcher who conducted the interview and* ***ST#*** *is the identifier for the participant who responded.*
2. *The yellow theme colour identifies the 6 key questions asked which include the following themes/topics:*

Question 1: Survey, 00:04:16

Question 2: Personal Learning, 00:08:30

Question 3: Learning in Action, 00:15:18

Question 4: Training, 00:26:05

Question 5: Suggestions from Participants, 00:30:00

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| **Q1**  **R**  00:04:16 | The survey: expand on your decision to categorise survey questions as easy/moderate/difficult |
| **ST3** | Question 3. It is really, really relevant because you see tiled floors everywhere; something that everyone is capable of. It’s something that they are used to seeing. So I think it is an easy enough question. |
| **ST1** | Question 6. We are used to those type of questions, the algebra one, like what we did for our Junior and Leaving Cert. |
| **ST4** | Question 8(b). You can do it in the class throwing coins. They can see when they put all their data together that they will get to close to 0.5. They would be able to appreciate the concept. A real life activity. |
| **ST5** | Question 4 is good for higher order thinking. A lot of them are doing maths for part (a)  and part (b) is to write a response. It’s a higher order question. |
| **R** | Therefore, when you were categorising it as ‘easy’ you were thinking about the student and how they would interact with this question. |
| **Group** | *General agreement* |
| **R** | What about question 2? |
| **ST6** | You can see why they put it as N – associating multiplication as making the numbers bigger.  It’s a very common mistake in fractions. Because they are used to doing it that way since 4th  class. They are used to numbers getting bigger so you can see why they make that mistake. |
| **R** | Have you encountered that issue in your own classrooms?  Can you think back how you dealt with it? Did you say something? Did you ask the student  to do something? Or how did you actually deal with it? |
| **ST5** | Use ‘of’. Half of something makes it smaller. ‘Of’ instead of multiply |
| **ST4** | I think using visuals so they can see the fractions getting smaller rather than other examples |
| **Q2**  **R**  00:08:30 | What is your understanding of literacy and numeracy for mathematics teaching? |
| **ST5** | Understanding terminology and to be able to define it. |
| **ST4** | There’s a whole context part to the paper now so they would need to apply what they know to  unfamiliar problems and decipher it. They need to be familiar with the terms etc. |
| **ST3** | Speaking and listening comes under literacy as well. The discussion part of maths –  now there is a lot of discussion. |
| **ST2** | Looking at numeracy and seeing patterns within questions and to help themselves. |
| **ST1** | For literacy it’s the five main pillars and applying that to each class and how it can be applied. |
| **R** | ST6, do you have anything else to add? |
| **ST6** | It’s an area I struggle with a lot myself so I need to develop a better understanding of it. |
| **R**  00:09:50 | This is the numeracy definition from the strategy (read definition). This is the official  definition, I have summarised it into these five elements (read summary). In light of reviewing  the official definition, is there anything you would add to your understanding of what  literacy and numeracy for the maths classroom is? I will focus on numeracy first. |
| **ST1** | Critical orientation. I suppose that is linked though with problem solving – I don’t know. |
| **R** | What is critical orientation? |
| **ST1** | We were told about critical orientation through numeracy. Isn’t it like using all of those skills to problem solve? |
| **ST5** | A system in order to problem solve. |
| **ST4** | When I think about ‘quantitatively’, I’m kind of naturally leaning towards numbers. I also think  you are required and in life as well to think and communicate qualitatively. You have to justify  your answers. |
| **R** | When are you going out on teaching practice next? |
|  | Tomorrow |
| **R** | Would there be any element you are teaching tomorrow that is appearing in that list? |
| **ST4** | I’m doing number patterns at the moment. |
| **ST6** | We’re doing the circle and they are designing a dart board. Problem solving. There’s a bit of it  involved in it. It’s an Ordinary TY class. |
| **R** | What about you, ST5? |
| **ST5** | We are doing algebra and there’s problem solving in it. |
| **ST3** | We are just starting algebra so we will be looking at patterns tomorrow |
| **ST2** | I’m doing sets. I suppose listing elements from the intersection, with non-repeating  elements would be patterns and I suppose making sense of data. |
| **ST1** | I’m teaching simultaneous equations, I suppose spatially aware? That it’s a line ….. |
| **R**  00:13:30 | This is the official literacy definition (read definition). You are familiar with that so again in terms of your lessons, what aspects of this particular definition is expressed in the work you do in the classroom? |
| **ST3** | I suppose various forms of communication. In my lesson plan for literacy I have speaking, listening, reading and writing. Listening and speaking would go under communication. |
| **ST4** | I think critically analysing. I use the textbook and project maths website a lot. But unless I am doing statistics or probability, I wouldn’t really use the media, digital media, which isn’t an excuse. |
| **ST1** | I suppose you have to be aware of the textbook you are using and are the students able to understand the text when they are going through questions. Consider that in your planning. |
| **Q3**  **R**  00:15:18 | Can you give me a specific example of literacy and numeracy in practice in a lesson you taught. |
| **ST1** | For literacy I remember when I was doing algebra with the second years, linear equations came up and we just wrote the word ‘linear’ down. I said ‘what does that mean? They said ‘it is a line from linear’. It kind of made more sense, linear equations, that was highlighting to them to make sense of words. |
| **ST2** | We made a maths wall so when we learn new a word, we write it on the maths wall and put the symbol opposite it. We associate the symbol with the word for literacy and they read the word and they take it down in their vocab copies. So it’s reading, writing and vocab. That would be literacy again. |
| **ST3** | In TY last week we made clinometers. For literacy they had to read the instructions they were given. So not only did they have to read them they had to really look at them. So they did it individually but they had to work together so that was speaking and listening as well. Then for the numeracy part they were using it to actually measure angles and stuff. So that’s both covered I think. |
| **ST4** | Literacy wise, last year, I had a really weak class that were daunted by problem solving in trigonometry. They didn’t even put pen to paper. They weren’t sure where it was going to go. I needed them to draw a line just so it would eventually form a triangle. Instead I gave them visuals, real life examples, like a plane taking off and a line of the altitude over the ground. In pairs they looked at the visual and they created their own problems in which they had to include given key words. They had to mention all of the numbers and see where the variable was. Sentence by sentence they described the picture and that’s all they were to do. Then when we reversed it they solved them. They had to just draw one line and they knew eventually what their goal was. That was our literacy. Then numeracy, I’m relying on that more than ever this year because I’ve got three Spanish students in my TY class with very little English. So I find myself drawing up symbols on the board and drawing visuals for them while I am talking. |
| **ST5** | I was introducing Algebra. I was doing all the new key terms like ‘constant’ and ‘variable’ and ‘coefficient’ for literacy. Then for numeracy they were kind of seeing patterns like ‘5 years older than someone else’. |
| **ST6** | We started probability. So there is a load of literacy. I did the water bottle challenge with them and they flipped it at different heights. For literacy they had to discuss, describe each event, whether it was ‘likely’, ‘unlikely’, ‘impossible’. That actually worked really well because they figured out ‘impossible’ meant it definitely can’t happen whereas they were saying ‘impossible’ means ‘it’s just really hard’. For numeracy they had to make up a table. They had to make sense of the data. They had to use tallies and they were able to come up with the relative frequency themselves so to apply the formula themselves. |
| **R**  00:20:00 | I have an example of two trigonometry questions and I would like you to examine what is the same and what’s different about these two questions? |
| **ST4** | The concept is the same in both. Like you are looking for the angle in both. |
| **ST3** | One relates to real life and the other one doesn’t |
| **R** | Would you use these kind of problems in your classrooms? Say one more real life and one more abstract. |
| **Group** | *Yes* |
| **R** | What challenges exist for our students in engaging with these problems? |
| **ST4** | The importance of reading the question. Some students think they are done when they find A. But they need to then answer the question:’ based on the safety regulations, is it safe?’ Sometimes, they stop at the first step. |
| **ST6** | I think for some students they would find it difficult to realise they are looking for A in the second question. In the first one it is really clear, find alpha. But in the second one, I’d see them struggle with questions like this to figure out A at all because they don’t know where to go with it. |
| **R** | Would you say one is more a literacy or numeracy question or would you say they have elements of both? |
| **ST5** | You definitely have to do a lot more reading in (b) in trying to figure out the question. Some students might just see a paragraph and just think ‘what’s going on?’ |
| **ST3** | Also you have to give an explanation in (b): ‘is it safe to use the ladder?’ They are going to have to answer that question. Whereas in question (a) they just find alpha and that’s it. |
| **R** | So the second question has more reading and there is more literacy involved. Would you think there are any literacy elements in the first question? |
| **ST4** | They need to know vertical. |
| **ST1** | I suppose the symbols. |
| **R**  00:23:27 | I just want to show you another example from a textbook. The question was: ‘calculate the volume of the following cylinders’. The question I have is: how do you think these questions support literacy and numeracy understanding or hinder literacy and numeracy understanding. |
| **ST1** | I suppose it’s very procedural. They just know what numbers to put in. |
| **ST4** | Sometimes I feel there is a right answer. We are supposed to be saying that when you put things into word problems that it is relatable, I agree with that for visuals. But occasionally the dyslexic kids, students who are just good at maths and not good at English are hindered by the word problems. That reality is almost tabooed. We’re supposed to say what’s new is great which it is as well but I think the balance is important. |
| **ST3** | I suppose numeracy still exists in the question. In the first one you are taking 7cm and 12 cm and you’re using the information and I know you are plugging them into a formula but you are still using the information. You’re making sense of it. |
| **ST4** | You could use this to teach them the importance of looking for the radius or the diameter before complicating it. |
| **ST1** | I think visually as well, the second three down here, the arrow is clearly showing what the 30cm is about. |
| **Q4**  **R**  00:26:05 | Can you describe the training you’ve received for literacy and numeracy in the maths classroom? |
| **ST6** | We had twelve lectures on it. Eight (literacy) and four (numeracy). |
| **ST5** | Double |
| **ST3** | The tutors would have addressed it last year when we were starting out. |
| **Group** | *Briefly though* |
| **ST5** | It was more literacy than numeracy. |
| **Group** | *Yes* |
| **ST1** | They said: ‘we will tell you about numeracy next year’. I was told for maths that the topic of algebra accounts for numeracy in the lesson and it was left at that. But they did go into more detail with literacy. It wasn’t until this year that literacy was broken down for us and we were shown the pillars and how to apply that to all the different subjects. |
| **ST4** | I didn’t miss anything and I thought literacy for all of last year was key words. At no stage did anyone highlight until this year that it was skills. |
| **ST1** | Interesting how they gave us 8 weeks in literacy and 4 weeks in numeracy. I don’t know why it wasn’t 6 and 6. |
| **ST4** | In the assessment literacy is worth more as well. |
| **ST6** | Two thirds versus one third |
| **ST3** | We’re meant to do both but we received more in literacy. |
| **ST4** | I actually did my numeracy assignment in *other subject* instead of in maths because I just looked at it in maths and I didn’t know where to start. I just kind of moved on because I feel like, I don’t know. I thought it was so broad. And I thought it was much easier to do it in *other* *subject*. Everybody (else) was saying it was a stretch applying teaching ‘in the middle of the town, at the edge of *the* town, in the country side’ using a map. I thought ‘not at all’. I was seeing strategies easily because I would be used to thinking like that. I thought that would get me more marks than throwing a stone into a pond over here. I don’t know. |
| **ST6** | I had to go the maths route. I had no choice. |
| **ST5** | I did maths as well |
| **ST3** | I was like **ST4**. I did *other subject* because I thought the maths was too broad. I was like, ‘I wouldn’t even know how to start’. |
| **ST2** | I did it in *other subject* |
| **ST1** | I did it in *other subject* too. |
| **R** | **LL** told me you did this group project on literacy, when was that? You had to do a presentation on that in front everybody. What did you learn from that? |
| **ST1** | I actually had to present. We were put into groups. Me and **ST4** both did it actually. We learned a load from actually taking the pillars and applying it to our subject and then getting up and speaking about it. For me my lesson plan literacy makes so much more sense. But then in terms of numeracy, I’m still a bit unsure to be honest. |
| **Group** | *Same* |
| **Q5**  **R**  00:30:00 | Is there anything you think should be covered in a module entitled ‘Literacy and Numeracy for Mathematics Teaching’? |
| **ST6** | Just more examples for specific subjects. It’s hard when he’s talking about a geography lesson and it has nothing to do with maths. It’s hard to find examples of it when I was looking it up. And name it. I know I am doing it every day but to name exactly what it is. |
| **ST4** | I think he gave us eight readings and two of them mentioned maths ….so we were always left to our own devices to apply it. But whereas literacy examples were very plentiful in all other subjects and readings. We were independently adapting them for maths continuously. |
| **ST1** | Last year with literacy we were stuck with literacy as key words and the vocab and that’s it and that’s what we thought it was. But now we’ve been shown the pillars and we understand it a lot more now. But I think for numeracy I am still at that stage with ‘numeracy is numbers’ and I have kind of got to the stage that ‘it is graphs and things’ but I am not much further past that to be honest. And we did a module. I’ve done an assignment on it in *other subject*. But really in terms of maths it’s not making a whole lot of sense to be honest. |
| **ST4** | I’d be interested in learning how better to facilitate people problem solving. That’s the biggest issue in my classes at the moment – I don’t really have a set of steps to teach them. Every time it depends on the question and how I would solve it but I can’t facilitate them to start. |
| **ST3** | Is numeracy going beyond the obvious? Let’s say when you are solving a linear equation in maths. Is that what numeracy is in maths. |
| **ST4** | I think it was so clear it wasn’t discussed. If someone could just clarify it in a sentence we’d be fine. Is it just the numbers and the symbols or is there equally a lot of depth to it. |
| **ST1** | A lot of what we did was applying maths concepts to other subjects. |
| **ST5** | Maths was kind of ignored. |
| **ST1** | We spent a lot of time looking for numeracy moments in all the other subjects. |
| **ST4** | One of the specific examples he gave us was that was taking up an assignment and if the student is using the same adjective repeatedly, show them how frequently it was used with a bar chart which I can appreciate the use of. But he picked out any words and I was thinking if I did this in *other subject* and I picked out how frequently they used ………they only know certain verbs, I just thought it was numeracy for numeracy sake rather than actually benefitting them which is not always the case but I would be worried that schools would be ticking boxes. |
| **Q6**  **R**  00:34:37 | Can I ask you about your use of the syllabus? When you are preparing your lessons are you consulting the syllabus? Do you have statements of learning from the syllabus? Or do you see the textbook as interpreting the syllabus? |
| **Group** | *General agreement that the textbook is the primary source*. |
| **ST6** | I use it to get key words |