

Trainer pack

An introduction to teaching English and maths together

Module 15

Course information **Length of session:** 3.5 hours, depending on size of group and prior knowledge and experience of participants. Trainers can customise, shorten and lengthen any part of the session to suit the audiences and settings. The session as it stands is intended to be 3.5 hours long, exclusive of any time allowed for registration and breaks.

Audience **Job roles:** Teachers, managers and assessors of vocational subjects and English, maths and ESOL subject specialists.

Sector / setting: All settings.

Notes

Handouts and resources

All resources are included at the end of this document, for ease of printing. Handouts are also shown, for your information. A separate participant pack is also available containing handouts and PowerPoint notes.

Aim

To highlight the mutually dependent relationship between English and maths in real world vocational contexts

Outcomes

By the end of the session participants will have:

- identified the English and maths elements of real world contexts;
- developed their skill in identifying maths and English in use;
- considered the complex relationship of English and maths skills;
- explored the concept of 'graphicacy' – English and maths together; and
- been introduced to a framework for analysis of maths and English in context.

Module overview

| Activity | | Content |
|----------|--|---|
| 1 | Welcome and ice-breaker activity | Completing a 'Who can...' questionnaire relating to the topics covered in the session. |
| 2 | Introductions, aims and intended outcomes | Introductions. Overview of session. Reflective log. |
| 3 | Background – embedded / integrated learning | Definition of embedded / integrated learning; link to participants' practice and functional skills. |
| 4 | Background to 'social practices' | Identifying the stages and tasks required in a typical activity; identifying these as 'social practices' or 'ways of doing things'. |
| 5 | 'Social practices' in vocational learning | Analysing a typical work practice – what skills are required? Consider the implications for teaching functional skills. |
| 6 | A framework for analysis of English and maths practices | Introduction to the Literacies for Learning theoretical framework; groups work on understanding the framework. |
| 7 | Using the Literacies for Learning framework | Groups work on using the Literacies for Learning framework, applying it to the work practice in TN 5. |
| 8 | Graphicacy | Looking at examples of how a synthesis of English and maths skills is required to understand new media which have a heavy use of graphics / images; watching an online presentation about the 'third domain' of graphicacy. |
| 9 | Summary of session | Summary of session, reflection and evaluation. |

Trainers

Trainer experience or qualifications required

The trainer needs to be an English or maths specialist, with a good understanding of the Literacies for Learning theoretical framework and experience and understanding of teaching and learning that integrates the teaching of English and maths with other subjects, such as functional skills in apprenticeships.

Reference material for trainers

Trainer notes

The Literacies for Learning project material: Pardoe S & Ivanic R, (2007) *Literacies for Learning in Further Education* Booklet and DVD

Project website: <http://www.lancs.ac.uk/lflife/>

New Challenges, New Chances, BIS, 2011
<http://www.bis.gov.uk/assets/biscore/further-education-skills/docs/f/11-1380-further-education-skills-system-reform-plan>

A copy of, or access to the Embedded learning starter kit: <http://www.excellencegateway.org.uk/node/1154>

Excellence Gateway collection of embedded learning materials
<http://rwp.excellencegateway.org.uk/Embedded%20Learning/>

LSIS CPD modules – available from this link:
<http://www.excellencegateway.org.uk/node/21318>

Resources

Resources for reference during the session

The Literacies for Learning project material: Pardoe S & Ivanic R, (2007)
Literacies for Learning in Further Education Booklet and DVD
Project website: <http://www.lancs.ac.uk/lflfe/>

New Challenges, New Chances, BIS, 2011
<http://www.bis.gov.uk/assets/biscore/further-education-skills/docs/f/11-1380-further-education-skills-system-reform-plan>

Guardian Infomania
<http://www.guardian.co.uk/culture/series/infomania>

YouTube TED presentation on graphicacy
<http://www.youtube.com/watch?v=7ZvsZtUfQQs&feature=youtu.be>

Pre-course activity for participants

None

Useful websites

See resource list (HO 4).

Before the session the trainer needs to:

All resources are at the end of this trainer pack.
Handouts are included for your information.

Print participant pack (which includes handouts and PowerPoint slide notes, but not resources).

TN 6. Prepare cards from **R 1** (blue for literacy, yellow for numeracy). Print Literacies for Learning blank (**R 2**) and **R 3** which contains the correct answer with additional notes.

TN 8. Set up online access in order to view the online video and to look at the article mentioned in the same section. **Note that audio facilities are essential for viewing the video – the internal speakers of a laptop will not be sufficient so you will need external speakers.**

Set up PowerPoint, with links to the internet.

Prepare flip chart and pens.

Session plan

Aim

To highlight the mutually dependent relationship between English and maths in real world vocational contexts

Outcomes

By the end of the session participants will have:

- identified the English and maths elements of real world contexts;
- developed their skill in identifying maths and English in use;
- considered the complex relationship of English and maths skills;
- explored the concept of ‘graphicacy’ – English and maths together; and
- been introduced to a framework for analysis of maths and English in context.

Suggested timings are for guidance purposes only. Trainers should adapt content to meet the needs and experience level of the participants

TN – trainer notes HO – handout R – resource PPT – PowerPoint

| Time | Content | Resources | | |
|------------------|--|-------------------|----------------------|---------------------------------|
| | | No. | Style | Title |
| 15m [15m] | TN 1. Ice-breaker As participants arrive, give them HO 1 and ask them to circulate and find the signatures. If possible, set table groupings so that there is a good mix of English and maths specialists, vocational specialists and levels of expertise. | PPT 1 HO 1 | Slide Handout | Introduction Who can...? |
| 15m | TN 2. Welcome and introduction, aim and outcomes Activity <ul style="list-style-type: none">• Trainers introduce themselves. Go over housekeeping and plan for the session, using PPT 2.• Participants introduce themselves: what they teach and what they hope | PPT 2 | Slide | Aim and outcomes |

| Time | Content | Resources | | |
|-------|---|---------------------|---------|-----------------------------|
| | | No. | Style | Title |
| [30m] | <p>to achieve by attending the session.</p> <ul style="list-style-type: none"> Ask participants if they have looked at the New Challenges, New Chances document from BIS. Show PPT 4 showing two 'key actions' from the document. Point out or elicit that this begs the question of what the most 'effective' pedagogy for teaching English and maths might be. Explain that this session looks at an aspect of this question and sets it in a theoretical framework. | PPT 3 | Slides | New Challenges, New Chances |
| | <p>Draw participants' attention to HO 2, a reflective log for this session. They should complete it as appropriate at the end of each activity, and time will be given at the end of the session to finalise it.</p> | HO 2 | Handout | Reflective log |
| 20m | <p>TN 3. Background – embedded / integrated learning</p> <p>In their table groups, ask participants for a definition of embedded or integrated learning. Give the definition used in the Excellence Gateway – PPT 4.</p> <p>Ask each group to come up with one specific example of where it is necessary to teach English and maths together, in a particular vocational or social context. Encourage participants to consider this in relation to functional skills.</p> <p>Take feedback, including any thoughts about particular issues this might involve.</p> <p>Record these issues on a flip chart, for later reference.</p> | PPT 4 | Slide | Embedded learning |
| [50m] | | Flip chart and pens | | |
| 30m | <p>TN 4. Background to 'social practices'</p> <p>Activity In their groups, ask participants to consider the scenario of buying a property, and to identify the stages</p> | | | |

| Time | Content | Resources | | |
|-------------|---|---|---|--|
| | | No. | Style | Title |
| [1h 20m] | <p>involved (for example, choosing an area, visiting an estate agent, reading particulars, visiting properties, negotiating a mortgage). The activity instructions are on PPT 5.</p> <p>In their table groups, ask them to select a stage of the chosen scenario (see alternatives below), and identify the English and maths involved.</p> <p>Feed back and elicit / explain, using PPT 6.</p> | PPT 5 | Slide | Activity instructions |
| 20m | <p>TN 5. Applying this to vocational contexts</p> <p>Activity</p> <ul style="list-style-type: none"> Ask participants to think of and record work practices specific to contexts relevant to their work– as many as possible. Feed back and compile a list on a whiteboard or flipchart. Consider the implications for teaching functional skills. You will need to select one of these to illustrate the Literacies for Learning framework introduced in TN 7. | Flip chart and pens or interactive whiteboard | | |
| [1h 40m] | <p>TN 6. A framework for analysis of English and maths practices</p> <p>Activity</p> <ul style="list-style-type: none"> Show the Mannion quote on PPT 7 then introduce the Literacies for Learning framework on PPT 8, talking through the nine categories. Divide participants into groups – literacy / English specialists and numeracy / maths specialists separated, with vocational teachers split between the groups. Using a blank grid (HO 3) and a set of cards (made from R 1: yellow card for numeracy, blue card for | PPT 7 PPT 8 R 1 HO 3 | Slide Slide Resource – cards Handout | Literacies for Learning overview Literacies for Learning framework Literacies for learning – cards Blank grid |

| Time | Content | Resources | | |
|----------|--|-------------------------------------|----------------------------|---|
| | | No. | Style | Title |
| [2h 5m] | <p>literacy) and ask them to assemble the table of nine elements.</p> <ul style="list-style-type: none"> Give out the completed literacy and numeracy framework, which includes some notes– R 2, and give participants time to read through / check. | R 2 | Resource – correct version | Literacies for learning – correct version with additional notes |
| 30m | <p>TN 7. Using the framework</p> <p>Activity</p> <ul style="list-style-type: none"> Ask participants to select a work practice from a vocational / subject area that involves number and text (i.e. English and maths) – this should be one of the tasks identified in TN 5. Using R 3 blank grids (printed as A3 size or larger) and pens, ask participants to use the framework to analyse the practice and to record this on the grids. Display the finished analyses and take / share feedback. | Work practices from TN 5 R 3 | Resource | Blank grid (print on A3) |
| [2h 35m] | | | | |
| 45m | <p>TN 8. Graphicacy</p> <p>Activity</p> <ul style="list-style-type: none"> Show PPT 9 with a link to a regular feature from <i>The Guardian</i> – ‘Infomania’ (from <i>The Guide</i> in the Saturday edition). The link on the PPT takes you to the ‘Infomania’ page where you can download many recent Infomania features, such as this one about HM The Queen: http://www.guardian.co.uk/culture/interactive/2012/jun/02/infomania-the-queen. Ask participants to look at the example(s) of Infomania features you’ve chosen and discuss the literacies (English) and numeracies (maths) needed to successfully interpret or create such a text. Take feedback, and point out that visual skills are also needed – | PPT 9 Online link | Slide | English and maths together |

| Time | Content | Resources | | |
|-------------|---|-------------------------|---------------------|-------------------------------|
| | | No. | Style | Title |
| [3h 20m] | <p>'graphicacy'.</p> <ul style="list-style-type: none"> • Show PPT 10 and give brief input. • Show the TED video from link on PPT 11. This interesting talk (11 mins) highlights the growing importance and relevance of graphicacy to our field. • Ask participants to suggest examples of graphicacy in use from their own daily lives, and in their learners' lives. • Show the quotation on PPT 12 to reinforce the importance of graphicacy in work contexts. | PPT 10 | Slide | Graphicacy – the third domain |
| | | PPT 11 (NB needs audio) | YouTube video | Graphicacy |
| | | PPT 12 | Slide with web link | Graphicacy: the third domain |
| 15m | <p>TN 9. Summary of session /Evaluation</p> <p>Activity</p> <ul style="list-style-type: none"> • Summarise content of session • Give out HO 4: Resources. • Participants complete their reflection sheets – HO 2. | HO 4 | Handout | Further reading /resources |
| [3h 35m] | | HO 2 | Handout | Reflection sheet |

TN 1

Trainer notes

| Time | Content | Resources | | |
|-------|--|-----------|---------|--------------|
| | | No. | Style | Title |
| 15m | TN 1. Ice-breaker | | | |
| | As participants arrive, give them HO 1 and ask them to circulate and find the signatures. | PPT 1 | Slide | Introduction |
| [15m] | If possible, set table groupings so that there is a good mix of English and maths specialists, vocational specialists and levels of expertise. | HO 1 | Handout | Who can...? |

Purpose of the activity: to give participants the opportunity to meet other participants and discover something about them; to allow the trainer the opportunity to ensure that table groupings are mixed.

HO 1 should be laid out ready for participants. When all have had the chance to tackle the ice-breaker activity, confirm that the 'correct' answers will become apparent during the session.

Background for trainer

Note: these notes are for the trainer's information, and are not intended for participants.

This CPD session presents a framework for a 'social practices' approach to teaching English and maths. It suggests that English (literacy) and maths (numeracy) are both tied intimately to the contexts in which they occur and are themselves closely bound up: a calculation, for example, may be dependent for a successful outcome upon the reading or manipulation / interpretation of a text. Equally, a literacy practice – such as producing a project report – may depend upon successfully performing calculations and estimations, or manipulating / interpreting graphs and statistics.

This session draws on current theory and research to suggest that a view of literacy / English and numeracy / maths (and language / ESOL) as a set of decontextualised 'skills' that can be taught outside of the contexts in which they occur is inadequate and ineffective.

Instead, the uses of English and maths should be seen as 'practices', i.e. inextricably bound up in the contexts in which they occur, and therefore bound together. People *do* things with text, language and number in certain ways for certain purposes according to the context – the social practice – in which they are taking part.

Learning to do a literacy practice, for example, involves learning how to use text – perhaps reading and / or writing – in certain highly context-specific ways.

Such a view of literacy, language and numeracy suggests that it should be no surprise that embedded (or ‘integrated’) provision might be more successful than discrete English and maths (see the NRDC report referred to in **HO 4**); learners are more likely to see the ‘point’ of English, maths and ESOL instruction where it is intimately linked to and part of the context they are trying to master. For example, the ‘point’ of literacy teaching in a construction context would be for learners to engage with how a builder or electrician actually uses text, reading and writing in the real working world: the literacy practices seen as part of the working practices in the construction industry.

Taken as a whole, a social practices approach to literacy and numeracy suggests that English, maths and ESOL / functional skills teachers need to work closely together across the three specialisms, and with vocational / subject teachers to analyse and bring to learners’ attention the ‘practices’ – English, maths and otherwise – that occur in the contexts in which and for which they are studying. In particular, it suggests that vocational / subject tutors will be able to draw on their knowledge and experience of their specialist area to explain to English and maths specialist colleagues *how* text, language and number are used in context, so that English and maths teachers can apply their own expertise to the teaching of these practices.

It is also worth noting at this point that many functional skills teachers report that learners’ functionality in English is not always sufficiently developed to support the literacy / language requirements of functional maths activities. This would appear to support the notion that functional skills teachers need to pay attention to the development of English and maths in context.

The framework presented here for analysing and teaching English and maths practices in context is adapted from the ‘Literacies for Learning’ research project. This study of the literacy practices used by vocational learners in several FE colleges (referred to as ‘LfL’ below), takes a social practices view of learning. It provides the framework for analysis and teaching used in this CPD session, and raises important issues around a skills-based view of teaching and learning.

It is crucial to realise that although the LfL research was focused on *literacy* practices, the framework can easily be adapted to work equally well with numeracy, language and other (e. g. social, work) practices.

For more information, see:

Pardoe S & Ivanic R, (2007) *Literacies for Learning in Further Education* Booklet and DVD

Project website: <http://www.lancs.ac.uk/lflfe/>

TN 2

Trainer notes

| Time | Content | Resources | | |
|-------|---|-----------|---------|-----------------------------|
| | | No. | Style | Title |
| 15m | <p>TN 2. Welcome and introduction, aim and outcomes</p> <p>Activity</p> <ul style="list-style-type: none"> Trainers introduce themselves. Go over housekeeping and plan for the session, using PPT 2. Participants introduce themselves: what they teach and what they hope to achieve by attending the session. Ask participants if they have looked at the New Challenges, New Chances document from BIS. Show PPT 3 showing two 'key actions' from the document. Point out or elicit that this begs the question of what the most 'effective' pedagogy for teaching English and maths might be. Explain that this session looks at an aspect of this question and sets it in a theoretical framework. <p>Draw participants' attention to HO 2, a reflective log for this session. They should complete it as appropriate at the end of each activity, and time will be given at the end of the session to finalise it.</p> | PPT 2 | Slide | Aim and outcomes |
| | | PPT 3 | Slides | New Challenges, New Chances |
| [30m] | | HO 2 | Handout | Reflective log |

Purpose of this activity: To share the intended outcomes with participants and find out a little about their motivations for attending and their teaching context.

This session provides an opportunity for the trainer to discover more about participants' experience and expertise.

Aim

To highlight the mutually dependent relationship between English and maths in real world vocational contexts

Outcomes

By the end of the session participants will have:

- identified the English and maths elements of real world contexts;
- developed their skill in identifying maths and English in use;
- considered the complex relationship of English and maths skills;
- explored the concept of 'graphicacy' – English and maths together; and
- been introduced to a framework for analysis of maths and English in context.

TN 3

Trainer notes

| Time | Content | Resources | | |
|-------|---|---------------------|-------|-------------------|
| | | No. | Style | Title |
| 20m | TN 3. Background – embedded / integrated learning In their table groups, ask participants for a definition of embedded or integrated learning. Give the definition used in the Excellence Gateway – PPT 4 . Ask each group to come up with one specific example of where it is necessary to teach English and maths together, in a particular vocational or social context. Encourage participants to consider this in relation to functional skills. | PPT 4 | Slide | Embedded learning |
| [50m] | Take feedback, including any thoughts about particular issues this might involve. Record these issues on a flip chart, for later reference. | Flip chart and pens | | |

Purpose of this activity: to ensure there is a shared vocabulary; for the trainer to begin to assess participants' level of understanding and to encourage a focus on functional skills.

This session provides a further opportunity to discover more about participants' understanding, particularly relating to embedding.

In the feedback, expect to hear about:

- issues relating to the practical difficulties of supporting vocational groups with the input of both English and maths specialists;
- issues about the difficulties of communicating the importance of focus on these skills to learners;
- issues relating to delivery of functional skills;
- issues relating to how literacy / English can be a barrier to maths development.

It is particularly appropriate to consider such issues when developing functional maths provision, where there is a need for learners to problem-solve; this is highly

likely to involve good levels of English skills, in terms of reading, writing and speaking and listening.

It is advisable not to get too diverted into issues relating to funding and management.

Take the opportunity to signpost participants to the Excellence Gateway collection of embedded learning materials

<http://rwp.excellencegateway.org.uk/Embedded%20Learning/> and the embedding starter kit <http://www.excellencegateway.org.uk/node/1154> .

TN 4

Trainer notes

| Time | Content | Resources | | |
|-------------|--|-----------|-------|-----------------------------------|
| | | No. | Style | Title |
| 30m | <p>TN 4. Background to ‘social practices’</p> <p>Activity In their groups, ask participants to consider the scenario of buying a property, and to identify the stages involved (for example, choosing an area, visiting an estate agent, reading particulars, visiting properties, negotiating a mortgage). The activity instructions are on PPT 5.</p> | PPT 5 | Slide | Activity instructions |
| [1h 20m] | <p>In their table groups, ask them to select a stage of the chosen scenario (see alternatives below), and identify the English and maths involved.</p> <p>Feed back and elicit / explain, using PPT 6.</p> | PPT 6 | Slide | Social practices – what are they? |

Purpose of this activity: To explain the social practices theoretical framework for analysis of English and maths in context.

Note that it isn't essential that participants fully understand the theory of social practices, especially given the short time available for this activity. The essential thing is to lead participants to understand that English and maths occur naturally together in real social, vocational and workplace contexts – vocational teachers will be well aware of this – and that this has implications for how these skills are taught.

Alternative scenarios for the activity

You might want to consider asking participants for a typical work-related activity, based on their experience of teaching functional skills / apprenticeships.

If the property buying scenario is not appropriate, or if you wish to focus on diversity issues, an alternative would be to ask participants to consider the scenario of planning a religious or cultural event (e.g. a Rosh Hashanah family dinner).

Feedback notes

You will need to explain, for any scenario:

- how each stage can be viewed as a 'social practice' or a way of doing something;
- the 'cultural' elements of each stage (e.g. ways of interacting with estate agents, beliefs about estate agents, dos and don'ts when visiting a property, how these practices may differ hugely between different cultures and countries);
- how English and maths are meshed together, e.g. numeracy in mortgage application forms, calculations when making offers on a property;
- how practices are distinctive and contextualised (e.g. the differences between buying a house and a car); and
- explain how social practices can be analysed as embedded 'numeracy practices', 'literacy practices', as 'work practices,' etc.

TN 5

Trainer notes

| Time | Content | Resources | | |
|------------------------|---|---|-------|-------|
| | | No. | Style | Title |
| 20m [1h 40m] | TN 5. Applying this to vocational contexts Activity <ul style="list-style-type: none">• Ask participants to think of and record work practices specific to contexts relevant to their work– as many as possible.• Feed back and compile a list on a whiteboard or flipchart.• Consider the implications for teaching functional skills.• You will need to select one of these to illustrate the Literacies for Learning framework introduced in TN 7. | Flip chart and pens or interactive whiteboard | | |

Purpose of this activity: To focus on English and maths in work practices.

Choice of contexts

Ideally participants should not spend too much time deciding on which context to think about, so the trainer may need to intervene. They should be encouraged to think of a typical activity relating to their learners' interests, e.g. organising an event, selling something online, a specific vocational task. The next step is to list all the elements of this task (i.e. what you have to do) maybe with a brief description. Finally, they should indicate the maths and English skills required to perform each element of the task.

The outcome of this exercise is likely to be fairly lengthy lists of complex and interrelated elements of tasks, using English and maths skills throughout. Ask participants to consider the implications for the teaching of:

- functional English
- functional maths
- vocational skills
- other skills.

Does this mean there will need to be changes to teaching approaches, resources, staffing, other elements?

TN 6

Trainer notes

| Time | Content | Resources | | |
|---------|---|-----------|----------------------------|---|
| | | No. | Style | Title |
| 25m | <p>TN 6. A framework for analysis of English and maths practices</p> <p>Activity</p> <ul style="list-style-type: none"> Show the Mannion quote on PPT 7, then introduce the Literacies for Learning framework on PPT 8, talking through the nine categories. Divide participants into groups – literacy / English specialists and numeracy / maths specialists separated, with vocational teachers split between the groups. Using a blank grid (HO 3) and a set of cards (made from R 1: yellow card for numeracy, blue card for literacy) and ask them to assemble the table of nine elements. Give out the completed literacy and numeracy framework, which includes some notes– R 2, and give participants time to read through / check. | PPT 7 | Slide | Literacies for Learning overview |
| | | PPT 8 | Slide | Literacies for Learning framework |
| | | R 1 | Resource – cards | Literacies for learning – cards |
| | | HO 3 | Handout | Blank grid |
| [2h 5m] | | R 2 | Resource – correct version | Literacies for learning – correct version with additional notes |

Purpose of this activity: to introduce a framework for the analysis and teaching of English and maths practices.

It would be useful if you could use one of the work practices described by the group in the activity in TN 5 to illustrate each element of the aspects of the LfL framework, in order to give it context.

Note that you may need to interpret the language on the cards for some participants.

TN 7

Trainer notes

| Time | Content | Resources | | |
|-------------|--|--------------------------|----------|--------------------------|
| | | No. | Style | Title |
| 30m | <p>TN 7. Using the framework</p> <p>Activity</p> <ul style="list-style-type: none"> Ask participants to select a work practice from a vocational / subject area that involves number and text (i.e. English and maths) – this should be one of the tasks identified in TN 5. Using R 3 blank grids (printed as A3 size or larger) and pens, ask participants to use the framework to analyse the practice and to record this on the grids. | Work practices from TN 5 | | |
| [2h 35m] | <ul style="list-style-type: none"> Display the finished analyses and take / share feedback. | R 3 | Resource | Blank grid (print on A3) |

Purpose of this activity: To give participants the opportunity to use the frameworks for analysis.

Extension

Ask participants to discuss and comment on which categories of the framework might present the most challenges for someone learning a new 'practice', in terms of the maths and English learning required.

TN 8

Trainer notes

| Time | Content | Resources | | |
|----------|--|-------------------------|---------------------|-------------------------------|
| | | No. | Style | Title |
| 45m | <p>TN 8. Graphicacy</p> <p>Activity</p> <ul style="list-style-type: none"> Show PPT 9 with a link to a regular feature from <i>The Guardian</i> – ‘Infomania’ (from <i>The Guide</i> in the Saturday edition). The link on the PPT takes you to the ‘Infomania’ page where you can download many recent Infomania features, such as this one about HM The Queen: http://www.guardian.co.uk/culture/interactive/2012/jun/02/infomania-the-queen. Ask participants to look at the example(s) of Infomania features you’ve chosen and discuss the literacies (English) and numeracies (maths) needed to successfully interpret or create such a text. Take feedback, and point out that visual skills are also needed – ‘graphicacy’. Show PPT 10 and give brief input. Show the TED video from link on PPT 11. This interesting talk (11 mins) highlights the growing importance and relevance of graphicacy to our field. Ask participants to suggest examples of graphicacy in use from their own daily lives, and in their learners’ lives. | PPT 9 | Slide | English and maths together |
| | | Online link | | |
| | | PPT 10 | Slide | Graphicacy – the third domain |
| | | PPT 11 (NB needs audio) | YouTube video | Graphicacy |
| [3h 20m] | <ul style="list-style-type: none"> Show the quotation on PPT 12 to reinforce the importance of graphicacy in work contexts. | PPT 12 | Slide with web link | Graphicacy: the third domain |

Purpose of this activity: To raise awareness of the 'third domain' of graphicacy, within which literacy and numeracy often co-occur.

Notes

PPT 10: Graphicacy – Infomania – the main point is that as our culture deals with increasingly large amounts of complex data, both in work and in social settings, visual literacies, and combinations of co-occurring literacies and numeracies tend to get bundled together. There has been a move away from the purely linguistic or numeric, towards visual representation. For more on this see Kress in the reading list (**HO 4**).

Alternatives

Infomania graphics: you can either project one onto your screen for participants to work from, or print off a selection for pairs / groups to use.

TED presentation: you could select an appropriate excerpt from the 11-minute video if you are short of time.

TN 9

Trainer notes

| Time | Content | Resources | | |
|-------------|--|-----------|---------|----------------------------|
| | | No. | Style | Title |
| 15m | TN 9. Summary of session /Evaluation | HO 4 | Handout | Further reading /resources |
| [3h 35m] | Activity <ul style="list-style-type: none">Summarise content of sessionGive out HO 4: Resources.Participants complete their reflection sheets – HO 2. | HO 2 | Handout | Reflection sheet |

Purpose of this activity: Trainer to summarise what has been covered

Draw participants' attention to the reading list handout – **HO 4.**

Give participants some time to complete **HO 2** with reflections and observations, personal and organisational action points.

Make participants aware of other LSIS CPD modules – available from this link:
<http://www.excellencegateway.org.uk/node/21318>

Module 15: Introduction to teaching English and maths together

Resources

R 1: Literacies for Learning – cards

R 2: Literacies for Learning – correct version with additional notes

R 3: Literacies for Learning – blank

Handouts

HO 1: Ice-breaker – Who can...?

HO 2: Reflective log

HO 3: Blank grid

HO 4: Further reading / resources

R 1: Literacies for Learning – cards

Print and cut out these as separate cards. The blue cards are for literacy / English and the yellow cards for numeracy / maths.

| | |
|---|---|
| <p>What are the learners reading and writing about?</p> <p>What 'issues' are they engaging with?</p> | <p>What is the numeracy / maths about?</p> <p>What calculations or estimations need to be made?</p> <p>What sort of solution is required?</p> |
| <p>What is the design and flow of information?</p> <p>What writing styles are used?</p> <p>What conventions does the reader or writer need to know?</p> | <p>What is the design and flow of information?</p> <p>What symbols are used?</p> <p>Do graphs, charts and tables clarify or obscure meaning?</p> <p>What mathematical conventions are needed?</p> |
| <p>Is the communication multimodal – including images / talk / sound as well as text?</p> <p>Is it to be read in a linear or non-linear way?</p> | <p>Is the subject matter multimodal – including images / diagrams / symbols / tables / text / sound?</p> <p>Is the numeracy process linear or non-linear?</p> |
| <p>What technologies are used to achieve this communication? (from pen and paper to digital technologies)</p> | <p>What technologies are used to achieve this communication? (from pen and paper to digital technologies)</p> <p>What calculating aids, measuring instruments, software are involved?</p> |
| <p>Why are they reading or writing?</p> <p>What are they aiming to achieve?</p> | <p>Why are they performing this numeracy / maths?</p> <p>What are they aiming to achieve?</p> |

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| <p>Why now? Why here?</p> <p>And why like this?</p> | <p>Why now? Why here?</p> <p>And why like this?</p> |
| <p>What is the reading or writing part of?</p> | <p>What is the numeracy / maths part of?</p> |
| <p>What is the process (or the stages) by which this reading or writing is achieved, perhaps including scanning, noting, drafting and reviewing?</p> | <p>What is the process (or the stages) by which this problem solving and calculating is achieved, perhaps including writing, reading, measuring, estimating collecting data, using formulae?</p> |
| <p>Who is the text being written <i>for</i>? or who was it written <i>for</i>?</p> | <p>Who is the exposition or solution being completed <i>for</i>?</p> <p>How will it be transmitted?</p> |
| <p>Who is the text written <i>by</i>, and in what role are they writing?</p> <p>What values and priorities do they bring to it?</p> | <p>What roles are the users in – scientist, technician, craft worker?</p> <p>Does the user identify as a mathematician or as a craftsperson?</p> |
| <p>Who are they reading and writing <i>with</i>, and how?</p> <p>Are they discussing it as they write?</p> <p>Are they writing parts of it, for someone else to check or finish?</p> <p>How are they using information that others have written?</p> | <p>Who is calculating, estimating etc?</p> <p>With whom and how?</p> <p>Are they discussing as they solve a problem?</p> <p>What sources, documents or theorems are they using?</p> |

R 2: Literacies for Learning – correct version, with additional notes

| | Literacy / English | Numeracy / maths |
|--------------------------------------|--|--|
| Topic + issues | <p>What are the learners reading and writing about? What 'issues' are they engaging with?</p> <p><i>Topics are represented in different ways in different social and professional contexts – ways that may be institutional and / or controversial.</i></p> | <p>What is the numeracy / maths about? What calculations or estimations need to be made? What sort of solution is required?</p> <p><i>Topics are represented in different ways in different social, technical vocational and scientific contexts – ways that may be institutional and / or controversial.</i></p> |
| Styles, designs + conventions | <p>What is the design and flow of information? What writing styles are used? What conventions does the reader or writer need to know?</p> <p><i>Learners cannot reinvent social / vocational / professional practices – we all need to learn from examples.</i></p> | <p>What is the design and flow of information? What symbols are used? Do graphs, charts and tables clarify or obscure meaning? What mathematical conventions are needed?</p> <p><i>Learners cannot reinvent social / vocational / professional practices – we all need to learn from examples.</i></p> |
| Modes | <p>Is the communication multimodal – including images / talk / sound as well as text? Is it to be read in a linear or non-linear way?</p> | <p>Is the subject matter multimodal – including images / diagrams / symbols / tables / text / sound? Is the numeracy process linear or non-linear?</p> |
| Technologies | <p>What technologies are used to achieve this communication? (from pen and paper to digital technologies)</p> <p><i>A person's expertise in a particular kind of reading or writing depends on having a sense of these nine aspects. That social or professional practice may be so familiar to them that these aspects are just obvious and not thought about. But when they were</i></p> | <p>What technologies are used to achieve this communication? (from pen and paper to digital technologies) What calculating aids, measuring instruments, software are involved?</p> <p><i>A person's expertise in a particular kind of numeracy / maths depends on having a sense of these nine aspects. That social or professional practice may be so familiar to</i></p> |

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| | <i>learning it, and now if they want to help someone else to learn it, they have to think about these aspects explicitly.</i> | <i>them that these aspects are just obvious and not thought about. But when they were learning it, and now if they want to help someone else to learn it, they have to think about these aspects explicitly.</i> |
| Purpose | <p>Why are they reading or writing? What are they aiming to achieve?</p> <p><i>The purpose may be partly their own, but it may also be institutional – it's what people do. Talking about purpose can be very useful in leading to talking about the other aspects.</i></p> | <p>Why are they performing this numeracy / maths? What are they aiming to achieve?</p> <p><i>The purpose may be partly their own, but it may also be institutional – it's what people do. Talking about purpose can be very useful in leading to talking about the other aspects.</i></p> |
| Flexibility and constraints | <p>Why now? Why here? And why like this?</p> <p><i>There are always constraints of time, space and resources, but also areas of flexibility and opportunity. These need to be discussed explicitly so that learners can understand the constraints, but also know where they can make choices and decisions.</i></p> | <p>Why now? Why here? And why like this?</p> <p><i>There are always constraints of time, space and resources, but also areas of flexibility and opportunity. These need to be discussed explicitly so that learners can understand the constraints, but also know where they can make choices and decisions.</i></p> |
| Actions | <p>What is the reading or writing part of?</p> <p><i>Reading and writing in life and work are about getting something done, or achieving something we value or enjoy, like fixing the car or planning a project or reading a novel. What is the wider action in this case?</i></p> | <p>What is the numeracy / maths part of?</p> <p><i>Problem solving and calculating in life and work are about getting something done, or achieving something we value or enjoy, like living within a financial budget or planning a project or understanding a scientific theory.</i></p> |
| Processes | <p>What is the process (or the stages) by which this reading or writing is achieved, perhaps including scanning, noting, drafting and reviewing?</p> | <p>What is the process (or the stages) by which this problem solving and calculating is achieved, perhaps including writing, reading, measuring, estimating collecting data, using</p> |

| | | |
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| | | formulae? |
| Audience | <p>Who is the text being written <i>for?</i> or who was it written <i>for?</i></p> <p><i>A professional note or document may be written for several audiences. Learners may have in mind the lecturer or an outside audience at different moments in their writing, so this needs explicit discussion.</i></p> | <p>Who is the exposition or solution being completed <i>for?</i></p> <p>How will it be transmitted?</p> <p><i>A professional note or document may be to solve a real problem or may be an example to demonstrate a process. Learners may have in mind the teaching context or a real situation at different moments in their problem solving process, so this needs explicit discussion.</i></p> |
| Roles, identities+ values | <p>Who is the text written <i>by</i>, and in what role are they writing? What values and priorities do they bring to it?</p> <p><i>For example, an electrician would be reading and writing in different ways to an electrical installer, project manager or inspector.</i></p> | <p>What roles are the users in – scientist, technician, craft worker? Does the user identify as a mathematician or as a craftsperson?</p> <p><i>For example, a builder would be calculating in different ways to an architect. Do the symbols and diagrams enlighten the specialist but mystify the uninitiated – does manipulating them provide status?</i></p> |
| Interaction, collaboration + use of sources | <p>Who are they reading and writing <i>with</i>, and how? Are they discussing it as they write? Are they writing parts of it, for someone else to check or finish? How are they using information that others have written?</p> | <p>Who is calculating, estimating etc? With whom and how? Are they discussing as they solve a problem? What sources, documents or theorems are they using?</p> |

Adapted from: S Pardoe & R Ivanic 2007. Literacies for Learning in Further Education. DVD film and booklet www.lancaster.ac.uk/LFLFE

R 3: Literacies for Learning – blank

| | | |
|--|--------------------------------------|--|
| topic + issues | purpose(s) | audience(s) |
| styles, designs + conventions | flexibility + constraints | roles, identities + values |
| modes + technologies | actions + processes | interaction, collaboration + use of sources |

HO 1: Ice-breaker – Who can...?

Collect a signature from someone who

| | | |
|--|---|--|
| <p>...can tell you what is meant by 'literacy practices'.</p> | <p>...can give you a definition of 'embedded learning'.</p> | <p>...can tell you when New Challenges, New Chances was published.</p> |
| <p>...can give you the names of 5 vocational areas which have embedded learning materials on the Excellence Gateway.</p> | <p>...can tell you 5 everyday tasks that involve both English and maths skills.</p> | <p>...can tell you what is meant by 'numeracy practices'.</p> |
| <p>...has expertise in a vocational area.</p> | <p>...has expertise in literacy / English or maths / numeracy.</p> | <p>...knows what is meant by 'graphicacy'.</p> |

HO 2: Reflective log

This log is a working document to record your thoughts, ideas and actions as you go through the session.

Reflections and observations

Personal action points

Actions for the organisation

HO 3: Blank grid

| | | |
|--|--------------------------------------|--|
| topic + issues | purpose(s) | audience(s) |
| styles, designs + conventions | flexibility + constraints | roles, identities + values |
| modes + technologies | actions + processes | interaction, collaboration + use of sources |

HO 4

Further reading / resources

Embedded learning

Casey, H., Cara, O., Eldred, J., Grief, S., Hodge, R., Ivanic, .R, Jupp, T., Lopez, D. and McNeil, B. (2006) "You wouldn't expect a maths teacher to teach plastering ..."
Embedding literacy, language and numeracy in post-16 vocational programmes – the impact on learning and achievement, London, NRDC.

Available at: http://www.nrdc.org.uk/publications_details.asp?ID=73

This study looked at embedded provision in a variety of contexts – a key finding was the higher achievement and retention rates that fully embedded provision demonstrated. This finding chimes very well with a social practices approach, which argues that learners' understanding of LLN practices benefit from learning these in context.

The LSIS Embedded LLN Starter Kit:

<http://www.excellencegateway.org.uk/page.aspx?o=292649>

LSIS embedded learning materials

<http://rwp.excellencegateway.org.uk/Embedded%20Learning/>

Social practices

Pardoe S & Ivanic R, (2007) *Literacies for Learning in Further Education* booklet and DVD. Project website: <http://www.lancs.ac.uk/lflfe/>

This important study of the literacy practices vocational learners in several colleges (referred to as 'Lfl' below) takes a social practices view of learning. It provides the framework for analysis and teaching used in this presentation, and raises important issues around a 'skills' based view of teaching and learning.

It is crucial to realise that although the Lfl research was focused on *literacy* practices, the framework can easily be adapted to work equally well with numeracy, language and other (e.g. social, work) practices.

Gee, J.P. (2011) *Social Linguistics and Literacies: Ideology in Discourses* Routledge
This seminal book focuses on the study of language, learning and literacy (and by implication, numeracy) in their social, cultural and political contexts. It argues for a social practices approach to literacy, language and numeracy (LLN), suggesting that LLN 'skills' cannot be meaningfully isolated from the contexts they occur in.

Graphicacy

Aldrich F and Sheppard L. 2000 'Graphicacy': the fourth 'R'? *Primary Science Review*, 64, 8 – 11, 2000.

www.lifesci.sussex.ac.uk/reginald-phillips/graphicacyPaper.pdf

Kress, G. (2004) *Literacy in the New Media Age*. London: Routledge

Kress, G and Van Leeuwen. (1996) *Reading Images: the Grammar of Visual Design* Routledge

Cope B and Kalantzis M, (2000) Multiliteracies: literacy learning and the design of social futures. Routledge

Guardian Infomania <http://www.guardian.co.uk/culture/series/infomania> This demonstrates the linking together of text and numerical information about personalities (eg the Queen) and events (Olympics).

YouTube – TED presentation

<http://www.youtube.com/watch?v=7ZvsZtUfQQs&feature=youtu.be> This presentation is about a fourth type of communication (oracy, literacy, numeracy – then graphicacy), which reflects multimedia and English and maths together.

Other useful information

New Challenges, New Chances, BIS, December 2011

<http://www.bis.gov.uk/assets/biscore/further-education-skills/docs/f/11-1380-further-education-skills-system-reform-plan.pdf>

Adult core curriculum – there are links shown at curriculum element level linking numeracy and literacy.

<http://www.excellencegateway.org.uk/sflcurriculum>

Other LSIS CPD modules – available from this link:

<http://www.excellencegateway.org.uk/node/21318>