



**A method for the design, delivery and evaluation of an information literacy intervention for development workers studying participation, power and social change**

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**Abstract:**

*This paper describes a method for instigating and implementing a training intervention to help learners develop a systematic approach to becoming informed i.e. their information literacy. The approach draws on research in the areas of pedagogy, peoples' information behaviour and information literacy as well as the development of information literacy interventions over the last ten years. The intervention took place at the Institute of Development Studies, at the University of Sussex, and was embedded in the curriculum. The learners, studying a Masters in Participation, Power and Social Change, came from Ethiopia, India, Indonesia, Jamaica, Kenya, Malawi, Palestine, Spain and the United Kingdom. All worked either as consultants or in non-government organisations that were involved in community projects or for government departments or international organisations with a remit for development. Topics covered included identifying and defining the research question; 'mapping' the information landscape; searching for information systematically; and processing information (identifying relevant material, communicating ideas etc.). The paper provides a rationale for the design of the intervention and highlights important 'ingredients', from inception to integration to delivery, that contributed to its success. Evaluative exercises were conducted to help determine the efficacy of the intervention. Critical reflection identifies areas for improvement.*

*Individuals' capabilities ... are limited by their capacity to construct useful knowledge, to share that knowledge with others, and to apply that knowledge in practice and in ways that may lead to further construction of knowledge through critical reflection on their practice' (Taylor & Clarke 2008, pp7)*

Taylor and Clarke's quote highlights the attention currently being paid to facilitating people's capacity to learn and the capabilities that will enable them to try, at least, to resolve their own problems; make their own informed decisions. Information literacy is a fundamental part of this capacity and this provided one important reason for the intervention described here. As indicated in the abstract this paper describes and reflects on an information literacy intervention involving mature students taking a Masters in Participation, Power and Social Change (MAP) at the Institute of Development Studies (IDS) in Brighton, at Sussex University, in the United Kingdom. MAP is a unique programme providing experienced development workers and social activists with the opportunity to critically reflect on their practice while continuing to work or volunteer for most of the period. The design of the curriculum is grounded in an experiential and reflective learning and participatory action research paradigm (Reason & Bradbury 2001). The learners came from Ethiopia, India, Indonesia, Jamaica, Kenya, Malawi, Palestine, Spain and the United Kingdom. All worked either as consultants or in non-government organisations that were involved in community projects or for government departments or international organisations with a remit for development. The purpose of this intervention was to enable them to develop their information literacy. This included the ability to systematically:

- understand the nature of a problem and to be able to define what it was they need to know;
- become familiar with the 'information landscape', including the electronic tools that help locate electronic and paper based publications. In addition to be able to identify people and organisations that could provide information and share knowledge;
- use these information resources systematically to help to become informed;
- manage the information they gathered;
- critically reflect on the learning process and develop metacognitive skills.

This learning was embedded within a specific context. The participants were all in the process of choosing a topic they wanted to investigate, through action research. They were expected to write a paper, an 'analytical paper' that described the topic they were going to investigate, placing it in the wider domain of Participation, Power and Social Change. This was an assessed piece of work. To achieve this they would need to tap into the information that would alert them to previous studies. This would inform their study in terms of what other people had found out as well as alerting them to methods for gathering data, information and knowledge.

Due to the varied background of the learners several challenges were evident:

- The majority had been outside the formal educational system for some time. This meant the majority had had very little experience of using the electronic information sources that are available in the current U.K. higher educational context.

- In some cases the educational backgrounds they had experienced did not facilitate or encourage access to a broad range of sources of information or the critical analytical interpretation of the information they encountered. In recent years their information seeking had been primarily limited to people (either in the community or other development workers), Google (when access permitted) and organisational Web sites.
- Furthermore, due to the nature of their work and to some extent their background, they tended to value local experience far more than information and knowledge that came from outside the environment within which they worked. This should not be interpreted as a criticism. In the past development interventions have been blighted by a lack of value being placed on indigenous local knowledge of people's situation, which has led to inappropriate, unsustainable, development interventions. However, thinking in this way can lead to only valuing local experience at the expense of external experience even when it is relevant.

Although the focus of the information literacy intervention served an immediate task it was expected that the learners would develop generic information literacy and be able to apply this knowledge when working in the development context. Nevertheless, without grounding information literacy interventions in the immediate learning context of the learner, enabling them to achieve a current goal and specific objectives, it was appreciated that information literacy interventions tend to have little lasting impact (Hepworth & Walton 2009).

## **The intervention**

The following section outlines the course of the intervention from inception to evaluation. The factors that led to the success of this intervention are identified since, we would argue, similar 'ingredients' would enable similar interventions elsewhere.

### **Inception**

The idea to introduce an information literacy programme for the MA in Participation, Power and Social Change (MAP) students stemmed from a meeting between Julie Brittain (Head of The British Library for Development Studies, IDS) and Mark Hepworth (Senior Lecturer in Information Science at Loughborough University) at the Library and Information Literacy Annual Conference (LILAC) conference in 2008. Julie's goal was to provide an information literacy intervention which both developed IDS student academic information literacy, as well as helped them in their workplaces and in their action research. Julie had a depth of experience of managing information resources in the developing country context and was aware that some students might be less practised in using some information resources, particularly those in an electronic format. Mark's motivation stemmed from a desire to share his knowledge, built up over the previous ten years, with regard to fostering information literacy and the opportunity to make the connection between academic information literacy and capacity development in developing countries. Julie had the domain knowledge. She also had the authority in the working context to generate support for this initiative. Mark had academic status and the theoretical and practical knowledge of how to design effective information literacy learning interventions. This proved to be an excellent combination not only in terms of designing a programme that related to the needs of the learners but also in getting acceptance from the IDS faculty and

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management. It is unlikely that we would have been able to fully integrate this programme into the MAP programme without this combination and so the information literacy aspect would have been marginalised to a brief 'these are the sources you have access to' type intervention.

### **Effective ingredients:**

- Promoted by a person in the organisation with recognised domain expertise and credibility and with appropriate managerial authority.
- Delivered by a person who understands how people learn and how to teach information literacy and has a willingness to integrate this knowledge within a particular domain.

### **Engaging stakeholders**

The following describes the approach taken to engage the various stakeholders (librarians, faculty and learners).

### **Engagement with library and information staff**

With regard to any information literacy intervention it is important to gain the support of library staff who are likely to be expected to continue to offer similar interventions in the future. In other words we wanted the provision of information literacy training to become recognised as part of the role for librarians and information staff in the future. Staff needed to become comfortable with this idea. They also needed to share a common understanding of what was meant by information literacy. Traditionally librarians have focused on enabling access to information rather than the broader remit encompassed by information literacy.

As a result a presentation was given to information services staff on information literacy explaining what is meant by information literacy, the problems experienced by information users and how to resolve these problems.

Meetings were held with librarians so that they could become familiar with the kind of intervention that was planned and the role expected of them. Their expertise was sought in terms of the domain specific resources that should be included in the training. Input from people in the information department who had expertise in monitoring and evaluation was also gathered to help determine the impact of the training. Valuing and drawing on the expertise of staff helped to generate organisational ownership of the programme and a commitment to its success. It also helped to ensure that any concerns could be addressed and possible negative consequences identified. Furthermore it was also possible to link the intervention with the ongoing objectives of the library. Generally there was a feeling that the library and its resources were not used as much as they could by some students. It was thought that the programme would therefore raise the profile of the library; increase students' awareness of the electronic and paper based resources; improve students' ability to use the resources available; make students aware of the support that the library could provide. It was also agreed that the programme could be used to test an idea whereby the students, who spent part of their Masters degree at IDS and part in their country of origin or another country, could be linked to 'information buddies'. It was intended that

they would facilitate student access to information both at IDS and also when they were away. The success and sustainability of the programme was therefore more likely due to the active participation of library staff rather than an intervention that was imposed or by ‘parachuting’ in an external consultant.

### **Effective ingredients:**

- Capitalise on the subject knowledge of librarians
- Align the information literacy intervention with library goals
- Ensure that staff are comfortable with the role.
- Involve librarians and information staff in the initial training.
- Ensure knowledge transfer between the consultant trainer and the librarians. This was achieved through collaboratively planning a subsequent training day for another group of students. The second intervention was at the request of faculty staff, based on positive feedback from students on the MA Participation intervention.

### **Engagement with faculty**

Incorporating and genuinely embedding information literacy in the curriculum has been notoriously difficult. Curriculums are always full – lecturers tend to feel that there is insufficient time to cover the material they think is important. They are unfamiliar with the library jargon of information literacy and there is a tendency to assume that information literacy is synonymous with ICT literacy. Faculty also tend to be unconscious of their own information literacy. It is an ‘unconscious competence’ (Race 2001) that has developed over time through a form of academic apprenticeship, gradually absorbing the norms and practices, that takes place during their undergraduate studies but primarily after they have graduated during their Master’s and PhD studies. Probably, as a result they tend not to appreciate the range of norms, attitudes, tasks, skills, thoughts, behaviour, environments (individual, organisational, social) that form their information literacy. Nor the time it takes to take these on in a fundamental way. Nevertheless, faculty would like students to make more use of the information resources that are available and to draw on the ideas in the literature. In addition they tend to be disappointed in the students’ ability to critically analyse the work of different authors and to relate previous work to their own studies. They are also conscious of the need for students to appreciate and adopt information norms such as not to plagiarise and to cite and reference sources. Recognising these needs provides a starting point for conversation with faculty and a common goal. In the IDS there was also recognition that because students came from very different information backgrounds and experience there was a particular need for help in using unfamiliar library resources. In this case faculty were particularly receptive probably because the nature of the programme emphasised the importance of facilitating learning and creating and supporting effective processes for generating knowledge with and by others.

As a result an outline of a training intervention was produced and communicated to the faculty. A meeting followed to talk through the various aspects of the training with a member of faculty and information staff. Three half days were negotiated and embedded in the curriculum. This was felt to be the maximum time that could be made in the students’ busy schedule. The focus of the intervention was to help students with

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their 'analytical paper'. The intervention was therefore timetabled and could be seen to be an integral part of the curriculum and enabling learners to achieve an assessed task. It was not an abstract 'add on'.

One reason for the acceptance by the member of faculty was the trainer's knowledge of pedagogy. Recognition, for example, that reflection, valuing and building on previous knowledge is a fundamental part of successful learning was warmly received. It also became apparent that what was good pedagogic practice from the trainer's perspective married with the experiential, reflective and participatory action research paradigm, that was integral to teaching MAP (Stackpool-Moore et al. 2006).

### **Effective ingredients:**

- Understanding the learning objectives of faculty and problems they have experienced.
- Understanding the theory of teaching and learning and being able to provide evidence of how this knowledge will be applied to satisfy faculty goals helped to gain the support of faculty.

### **Engagement with learners**

The development workers taking the MAP Masters qualification came from organisations involved in facilitating change in developing countries. A survey enabling an overview of their previous experience and their learning objectives was obtained from the students prior to their arrival. This helped to orientate the training. Some trainees had been out of higher education for some time. Several came from environments where they had had little access to information resources and were unfamiliar with electronic access to information resources in higher education in the U.K.

The intervention was presented as a necessary part of the curriculum that would help them with the writing of their analytical paper. Therefore the information literacy programme was integrated into the learning context of the students and was advocated as a way to help them succeed with their work. In addition, prior to the training, an 'information literacy self assessment questionnaire' (see Appendix 1) was designed and implemented to get more information about their information literacy. This also served as a diagnostic test designed to help measure the impact of the intervention. It also encouraged the learners to reappraise their information literacy both before and after the course and reflect on the intervention. This was intended to help the learners to be more conscious of their information literacy and foster deeper learning.

### **Effective ingredients:**

- Understanding the background of the learners and specific information problems that learners had experienced enabled the intervention to be adapted and to be seen to be related to the learners' needs.

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- Ensuring that the information literacy intervention was seen to be part of the curriculum and explicitly helping learners to achieve learning tasks, hence, gaining learner motivation.
- Incorporating the opportunity for learners to reflect on their information literacy before and after the intervention.

## **The intervention**

At the start of the first half-day learning outcomes were introduced. These indicated to the learners the purpose of the intervention. These were influenced by the responses to the initial survey and the diagnostic test. For example, students had stated that they needed help to identify relevant information and systematically narrow and broaden a search.

An introduction to information literacy was included before going into mind mapping the subject domain of the students' topic and their information needs. With hindsight it was felt that this initial orientation to information literacy was unnecessary. Although the students found the discussion of the role of information engaging, due to time constraints it had to be cut short. Making the connection between information literacy and personal, organisational and social empowerment is important so that people can see the full implication of information literacy. However, to do this properly would probably need a separate intervention. The students did not engage, initially, with the abstract nature of information literacy. This implies that information literacy can probably only be fully appreciated through structured experience and conscious reflection and there is little point discussing information literacy prior to the training intervention. The bulk of the time was spent systematically mapping their chosen topic. This was very productive and the students found it extremely useful.

The second half-day focused on the information landscape and the tools available for locating information. The majority of students had had little experience of the range of electronic sources available. All the students had used the World Wide Web to find information. Generally, this was from the web sites of organisations involved in development work. Google was the main tool people had used to find information. Therefore, the objective was to build on this previous knowledge.

The third half-day focused on the use of information, partly as a result of suggestions from faculty. One lecturer was concerned with the length of time that students took to gather information. It was felt that many students, perhaps due to the learning cultures they had experienced, tended to think that they needed to read every recommended book, cover to cover, rather than browsing texts systematically and strategically. Another lecturer highlighted a need for a more analytical and critical approach to the literature where the student analysed, synthesised and critically reflected on the literature. They also wanted the students to relate the material found to their chosen topic and to compare and contrast previous authors' ideas with their own.

## **The first half-day**

Following an introduction to the three half-day intervention and a discussion of the power of information, the students' previous knowledge of using information was discussed. This helped to orientate the trainer to the students' level of knowledge of

information sources. It also encouraged the learners to bring to the forefront of their minds their knowledge of information sources. It also showed that the learners' knowledge was valued. Furthermore, it has been found that thinking of information in terms of sources or 'objects' is a good starting point since it corresponds to the most basic and fundamental perception of information. Information as something processed and applied tends to be associated with more advanced conceptions of information.

This discussion served to help identify useful general sources that could be used to orientate the learners to their topic. The focus, however, was to conceptualise their individual topic; to identify the language of the domain and the terms people use to discuss and describe the topic; the questions they were trying to investigate; what was relevant and what was not. In other words 'mapping the domain'. This is a necessary initial stage of any research and tends to form the basis of any information literacy intervention. Without allowing time for learners to engage with the topic and to start to define what it is they want to know subsequent interventions where they learn to use information retrieval systems tend to be less effective. It helps to foster their motivation for exploration and finding out. Furthermore, one of the hardest tasks of the discovery process is determining exactly what one needs to know, 'pinning' down the topic. In addition, people who have little knowledge of the subject or whose first language is not English, find it difficult to think of terms that can be used to define the domain. This has a negative impact when using an electronic information retrieval system because these tools depend on the user entering the terms that will be searched for in an index. A limited range of terms limits the material retrieved and relevant material will be overlooked.

As mentioned above, previous knowledge of sources was elicited. Obstacles were discussed such as 'too much information' or 'too little information' or 'irrelevant information' retrieved. This served to instigate discussion about the use of terminology and the importance of mapping the domain and thinking about how the topic is discussed and represented by people working in the participation and social change community of practice. This led to the 'mind mapping' task, where students were asked to create a mind map of the topic, identifying key terms, concepts etc..

Learners were presented with a mind map of the subject domain associated with the MAP programme that had been created by the trainer to give an indication of what was expected. However, the students determined how they wished to present their mind map. Learners worked individually using large flip chart paper writing down terms that could be used to represent their domain and how they were interconnected. This process of visualising the domain enabled them to start to define their topic and identify questions they wished to investigate. They then presented these to the larger group.

Asking learners to present their work serves a number of learning objectives. Writing and then communicating their topic meant that they had to use the vocabulary of the domain and the community of practice. This is, in itself, an objective of becoming information literate in a particular field i.e. to be able to map the domain, use the language of the domain and identify questions that need to be resolved – the latter, in a sense, are the intellectual drivers of community action. More specifically they are identifying terms, alternative terms, such as synonyms that can be used to search for information and helps to define their information needs. The act of defining the

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domain, understanding what is relevant and irrelevant to their inquiry and having to communicate it also helps to make sense of the topic and also demonstrates a degree of comprehension.

Defining a topic before starting to look for information is not an intuitive activity. In general, people tend to immediately start to look for information without defining the topic. Searchers often use only two or three broad terms or, alternatively, enter all the terms that appear in a question. These approaches tend to result in either too little, too much or irrelevant information. To some extent, however, the process of defining the domain and looking for relevant information are interconnected. 'Bumping' into information can alert the learner to new aspects of the topic. Useful terms can be identified in retrieved texts. Keywords used to describe the topic, such as index terms, may be found and used for further searching. 'Finding out' is a highly iterative process and information literacy models that imply a purely linear process do not recognise the reality of the learner's experience and are therefore misleading.

Ideally, when creating the mind maps, it is therefore a good idea for learners to have access to 'orientation' sources that help to provide an overview of the topic and help identify and explain terminology. These would include thesauri, dictionaries, encyclopaedia, seminal texts, newspapers and magazines (accessible via online databases and Web search engines) and subject related portals (such as Intute or ELDIS). However, at this point there is no need to teach complex search techniques since searches can be simple perhaps using the Boolean OR or AND or limiting the search to the titles of documents. Encouraging learners to browse the contents pages or indexes of books can also help orientate the learner to the topic.

This has implications for the learning environment. To enable this kind of intervention a space is required with flat tables where people can work individually and in groups. It requires access to PCs for searching for electronic information sources and access to hard copy reference sources and texts. In addition, a data projector for presenting slides and flip charts for quickly capturing and presenting ideas are needed. Software would ideally include mind mapping software as well as tools to capture references such as bibliographical software, social bookmarking applications and collaborative software to enable the sharing of information. Increasingly these are freely available via Web 2.0 technologies.

Once learners had mapped their topic they were asked to present their ideas to the group. As indicated above, this fostered learning and a better conceptualisation of the domain. It also enabled peer-to-peer learning. Learners benefitted from each other through their suggestions and this fostered a collaborative atmosphere among the cohort. Different approaches were taken which prompted others to think about different ways of visualising the domain.

This activity fostered their presentation and communication skills as well as confidence in their own ideas. Value was therefore placed on the learners' ability, making them an active participant in the learning process rather than a passive recipient of 'learning'. This leads to more engagement with the learning process and fosters the ideology behind information literacy i.e. to enable people to become more effective independent learners.

Lastly, learners were asked to identify processes and strategies that they had undertaken and critically reflect on the intervention. They were also asked whether they could apply this knowledge to other situations. The ability to transfer learning to other contexts implies that 'deep' learning has taken place and also provides validation and hence motivation to engage further in the training. Reflection is a fundamental part of learning and encourages 'deep' rather than 'shallow' learning. Shallow learning is characterised by rote learning that tends to be forgotten once the need to remember, such as a test, has passed. Reflection on processes and strategies enables the learner to develop metacognitive skills where they can critically think about how they learn and their thinking and hence can apply thinking in a strategic, conscious, way. How they interact with and use information therefore comes to the forefront of their minds, a conscious activity, and in this sense they are becoming information literate. The reflective sessions also enable the trainer to get a better understanding of what has been learnt and whether the intervention could be improved in the future.

### **Effective ingredients:**

- Allowing time for the learners to engage with the process of finding out, identifying a research topic, enables the subsequent intervention to have meaning – it gains motivation.
- This initial stage also helps to identify the appropriate vocabulary for information retrieval.
- Presentation and communication by learners fosters reflection, deeper learning, peer-to-peer learning and develops the confidence and ability to communicate ideas.
- Reflection on what has been learnt and its efficacy helps to deepen and concretise learning in the mind of the learner and develop the ability to think about how they learn i.e. metacognitive skills.

### **The second half-day**

The agenda for the second intervention included reflecting on the previous session; identifying information retrieval tools; the structure of tools and how it can be used improve searching; evaluating information tools; defining information needs and refining research questions.

It was important to reflect on the previous session, partly for the reasons indicated above but also to refresh memories. The main purpose of this session was to map the information landscape that would be useful to the students. The metaphor 'information landscape' helps learners to visualise information. The metaphor can be extended to include the 'journey' of discovery, finding 'pots of gold' and the 'needle in the haystack'. Metaphors are useful in the learning context because they help people understand and visualise unfamiliar things. For example, using the word 'journey' immediately implies that it is probably a long process (not an instant quick hit activity as people are led to believe by the search software vendors) and that there may be dead ends, going back, retracing one's steps, discovering new sources as the journey unfolds.

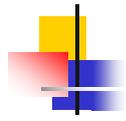
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There followed an activity. Breaking up teaching and learning with a combination of instruction and activities helps to maintain attention. Attention spans tend to drop after about twenty minutes. Also different learners, such as those who favour a kinaesthetic learning style, prefer learning through doing. Having taken part in an activity, learners can also be asked to reflect on their experience and identify problems and solutions. This leads to learning a body of principles, grounded in experience, that can be applied to other similar situations. This approach is supported by theories about how effective learning takes place (Kolb et al. 1991).

Learners were then asked to reflect on the sources of information that they had used in the past. This stimulated them to think about sources. They were able to discuss these before feeding back to the wider group. This gives the learner time to think, fosters peer-to-peer learning, and leads to greater participation and contribution to discussion. It also values the knowledge of the learner. In fact far more time could have been given to eliciting useful sources and ways of gathering information. Learners, particularly mature learners, are likely to have already developed a range of methods and techniques for learning and finding out as well as criteria for assessing the quality of information. It would be good to consciously share and build on this expertise. This would bring to the foreground previous knowledge. As well as being productive in terms of shared learning, it would also provide a bridge into the use of the specific sources and evaluation criteria that are being introduced by the trainer in the new learning context. However, it would require more time.

Learners were asked to share their thoughts with the group. These were posted onto a 'landscape' on the flip chart. This fostered peer-to-peer learning and allowed a discussion of the relative merits of different sources and a debate about the relative merits of oral, indigenous, grass roots and experiential knowledge versus published information that tends to stem from experts, such as, academics and consultative organisations. This debate tallied with a theme underpinning the MAP programme i.e. to encourage students to challenge orthodoxies. In addition, these were learners who, due to their experience, particularly valued local knowledge and in some cases were extremely sceptical of the value of experiences from outside their particular socio-cultural and geographical context. 'Expert' knowledge tended to originate in the 'north' whereas knowledge grounded in practical experience tended to be found in the 'south'.

The following slide helped to consolidate the collective knowledge of formal sources that were valued in the academic environment at IDS. It also served to introduce sources that were not familiar to the learners.



## 'Mapping the information landscape'

- Physical locations:
    - IDS Library (BLDS – catalogue, subject guides)
    - Participation Resource Centre
    - University of Sussex Library
  - Books (reading lists, Amazon, shelves)
  - Journals, e-journals (African journals online)
  - 'Tools'
    - Databases (Sciencedirect etc. see BLDS list), Portals (ELDIS gateway, R4D, Global Development Gateway)
    - Search engines (Google, SCIRUS)
  - People (supervisors, experts – IDS participation team, colleagues, community)
  - Organisations (FAO, GDN, Dfid, iied, OED, WHO, World Bank, ILO, IMF, Futures Group, OECD, ActionAid, IDRC, SIDA, CIDA, NORAD, USAID, Manchester School of Environment & Development, Overseas Development Group UEA)
- See Flip Chart – the 'Information Landscape'

In addition to the traditional library resources, the library catalogue, books, databases, reading lists, the participation collection etc. it can be seen that recognition was given to the wider information landscape. This included 'people' and 'organisations'. It is important to be alert to the landscape as a whole – learners can be systematic users of people and organisations as well as books and databases.

Discussion then took place regarding the 'value' placed on information. As indicated earlier this is a sensitive issue for people involved in participatory development where the capability and knowledge of the community is highly valued. Hence, in addition to the classical, library science, source evaluation criteria (scope, coverage, authority, currency, functionality, design (navigation, layout etc.), style (textual, numeric, depth etc.)) the issue of 'who's voice are we listening to' was a fundamental question. Discussion favoured the idea that horizontal learning, tapping into local knowledge, should be the starting point for investigation and then identifying relevant information and knowledge external to the local environment. Whereas, generally, in academia the reverse tends to be the case. Thought was also given to the resources that would be available in the workplace – partly to connect academic information literacy with workplace information literacy, but also to alert students to resources that they could access from the workplace.

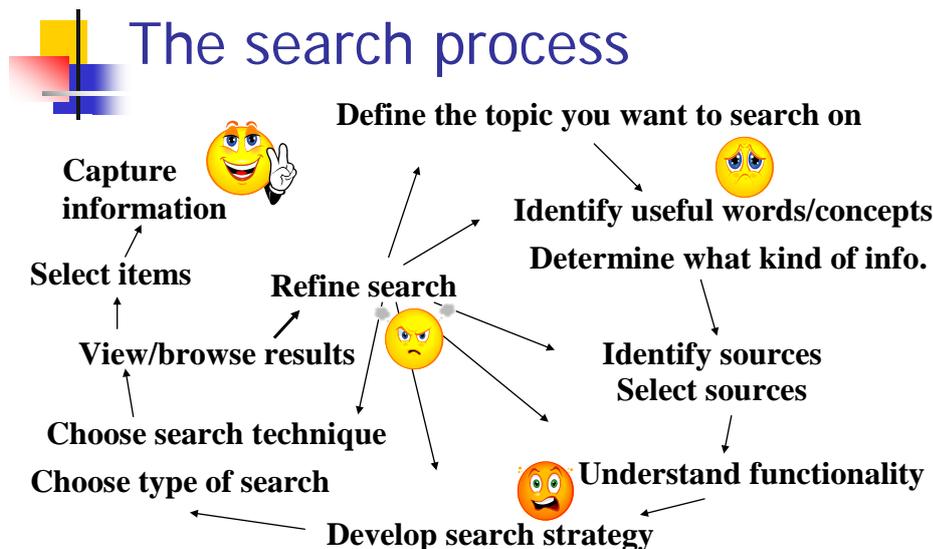
Learners did a preliminary search and this was followed by a presentation on the mechanics of electronic sources. This included the characteristics of a database; that they contained 'records' and these records were broken down into 'fields'; that the retrieval tools compiled an index of terms in the various fields and that this was what you searched. A demonstration took place, which showed how these databases could be searched. They were then asked to access the library catalogue, an online database, a search engine and a portal and identify fields that could be used to limit the search. Students therefore gained experience; theory was generated through reflection and formalised by the facilitator and then applied; followed by further

reflection aiding information retrieval knowledge to be formed. This was fostered, as before, through reporting back and discussion of the experience.

The next stage in the intervention was to develop a consciousness of the overall search process. If learners can develop these metacognitive skills they then have a framework that enables them to think about the process. Hence, they can plan and review the process and reflect on whether they have undertaken each part of the process effectively.

The iterative nature of the process was emphasised, especially the early stages of exploring a topic and that meaning is gradually constructed in the mind of the learner. This is necessary because often a naïve expectation that the search process is linear leads to frustration. It is only when the topic and the items sought are very clearly defined or already known that searches conform to the classic information retrieval model of query construction (topic representation) – search (topic mediation) – find (topic representation is retrieved).

In the following slide the ‘faces’ were included so that common emotions associated with the information retrieval process were recognised. Recognising that it can be a frustrating and worrying process helps people to cope with these experiences.



Common problems were identified by drawing on the learners' previous experience; these included too much, too little and irrelevant information. How to avoid these common, recognised, problems was discussed. For example, irrelevant information tends to be due to using the wrong terms to search, choosing the wrong source or not understanding the functionality of the information retrieval tool. Hence, students were asked to reflect on their experience and to see whether this knowledge could be applied to their information needs. Further strategies were introduced. The 'lever' metaphor was used to indicate how searchers could increase or decrease, narrow or

broaden, the search using the functionality of the system. For example, using an author field to search for a known author is highly specific and is likely to lead to relatively small number of relevant results. Whereas using the Boolean OR between terms and not restricting the search to a particular field is likely to lead to a broad search and retrieving many items some of which will be irrelevant.

Learners were then asked to apply this knowledge and seek information that related to their topic. They were asked to identify: useful sources; problems they experienced; search strategies and techniques that were useful and to be able present and discuss their findings. Presentation and discussion were used as a tool to encourage reflection, critical thinking, peer-to-peer learning and to help assess learning.

### **Effective ingredients:**

- Drawing on and building on the knowledge of the learners. Ideally more time would have been devoted to this. This would have enabled more peer-to-peer learning that would probably have been highly relevant to the learners since, to some extent, they were confronted with common problems and may have already found different ways of dealing with them.
- Combining theory with practice and allowing time for learners to apply new learning and reflect on this experience. Again, as will be shown in the section on student feedback, more time would have been beneficial.
- Recognising the 'messy', iterative nature of the search process led to realistic expectations.
- Recognising the emotional states associated with the experience lessened the frustration associated with information seeking.

### **The third half-day**

The third half-day focused on the efficient and effective use of information. In addition, it included a reflective session and a post-diagnostic test that fostered reflection. The agenda included finding an article; evaluating an article; capturing information; effective use of material (analyse, synthesise, criticise, relate to own topic); essay structure; redefinition of the topic; reflection and post-diagnostic test.

Learners were first asked to create a concept table listing the terms and alternative terms that would be useful for search information. The initial mind map was referred to and subsequent items they had found useful. This served to make a link with earlier sessions and the overall process. It also reaffirmed the need to identify alternative terms that can be used to retrieve relevant information. For example, the terms 'community engagement' or 'citizen engagement' are used as alternative terms to describe participative approaches. On reflection this concept map could have been created in the very first session and added to as the students became more familiar with the domain.

They then went online to retrieve material that could be used to practise critical thinking skills. Effective techniques were highlighted for identifying relevant material and using critical thinking skills to process information, such as identifying common

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themes, and relating the ideas discovered to their topic. The language and structure of essay writing was discussed. Traditionally, librarians have primarily paid attention to evaluation criteria (authority, scope, style etc.) to help evaluate an information artefact and these are applied to the document as a whole. However, less emphasis has been given to the thinking skills required to process information or communicate information effectively and yet these are important aspects of being information literate. Classical evaluation criteria were communicated (who is the author / publisher, whose voice are we hearing (academic, practitioners etc.), the level (overview, expert etc.) and the relevance to their topic.

Partly due to the comments of lecturers, greater attention was paid to processing information and communicating information. Specific techniques were suggested for identifying relevant information and that would increase the speed of the process. With regard to books and articles this meant engaging with the structure of written sources and how authors communicate their ideas. A quick guide to 'smart reading' was included that clearly identified the structure of a book and how the index, contents page, headings, diagrams, conclusions etc. could be used to get an overview of the ideas being presented and whether it was worth spending time reading the document in full. 'Tips' such as paragraphs towards the end of a document are likely to offer alternative conclusions or solutions whereas the concluding section is likely to offer a primary conclusion or solution were conveyed.

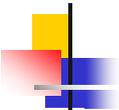
The kind of language that would be used to discuss the ideas of authors, to link ideas together and to critically reflect on what had been published by authors working in the domain was highlighted. To be able to contribute knowledge to the academic 'community of practice' (Wenger 1999) one has to be able use the appropriate language and conform to academic norms. Otherwise the contribution will be marginalised. Furthermore, the language used indicates the cognitive processes expected of the learner. These need to be made explicit to the learner rather than assuming they are known or will be absorbed through 'osmosis'. This is particularly important if the learner has come from a background where this academic approach to learning is not the norm. For example, if someone has been expected to learn and regurgitate information provided by the 'teacher' or 'author' it unlikely that they will critically reflect on information that is made available to them.

Reading with purpose i.e. to find information that relates to a specific question enables the reader to identify and assimilate appropriate information or discount or ignore irrelevant information. This enables the reader to interpret content in a more meaningful way and also speeds up the process. In addition, as with the information retrieval process discussed above, being conscious of information processing techniques and processes enables the learners to think about how they are undertaking the task and develops the ability to monitor themselves and make adjustments when necessary. Furthermore, using the language of critical reflection and purposeful information processing should enable the reader to reflect, critically, on their own ideas. The following two slides give an indication of how this was structured.



## Processing and presenting information and ideas

- Activity: select some material (book, article, Web page etc.)
  - Analyse and summarise (what's it about?)
    - Author(s) ... discovered ... described ... conducted ...  
suggests ... argues ... recommends ... states ... claims
    - Works / results / findings / study -> indicates ... demonstrates ... supports ... corroborates  
(What does it offer? How does it contribute?)



## Processing and presenting information and ideas (contd.)

Evidence:

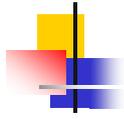
... furthermore ...  
moreover ...  
similarly ... as a  
result ...  
therefore

Critique:

However ... conversely  
... on the other hand ...  
in contrast ... nevertheless  
... not necessarily ... not  
supported ... lacks

HOW DO THE INFORMATION OR IDEAS RELATE TO  
YOUR ANALYTICAL PAPER TOPIC?

The language associated with different sections of a 'report' or 'essay' was also highlighted and practiced using the students' own topics.



## Where are you heading? What is the final structure of the Analytical paper?

- Introduction (purpose ... this project ...)
- Definition of terms (expansion)
- Background (after ... over the past ...)
- Justification (however ...)
- Outline structure (first ... second ...)
- Body
- Logical conclusion (repeat purpose ... thus)
- Brief summary (the main ... key ...)
- Comment on ideas ?/ reflect / limitation / further work (whereas ... hoped that ... although)

This kind of knowledge may be assumed to have been learnt in school or from self study and yet from teaching experience this is not the case, even at a postgraduate level. Or, if it has been absorbed in relation to one domain, such as history, the learner may not transfer this type of thinking to another domain. Even those who do conform to these academic norms benefit from becoming more conscious of these information behaviours.

While collecting information for evaluation and use students were given advice on how to capture information and emphasised the need to capture the references of any material they were going to use and how to avoid plagiarism. Less time was spent on these than may have been the case partly because the pre-course survey indicated that, generally, students were already aware of these issues and also they were covered elsewhere in the curriculum. However, it was evident from reviewing the students' analytical papers that a few students would have benefitted from more help with referencing.

### **Effective ingredients:**

- The training addressed problems that had been explicitly identified by the learners including the ability to identify relevant information and dealing with information overload.
- The training addressed problems that had been explicitly identified by the faculty including a lack of critical analysis of information and students not relating previously published information to their topic.
- The norms associated with processing and communicating information in the academic context were not assumed.
- Learners were given the opportunity to practise and reflect on compliance with these academic norms.

Having gone through this experience students were asked to reflect on their topics and to share these with their peers. This was done partly because the purpose of the intervention was to help students define their topics through the process of mind mapping and accessing and processing information over the three half-days. In addition, of course, they were expected to learn about the information landscape and how to access information effectively and to make effective use of the material they found. They were also asked to reflect on the programme as a whole and to think about what they had learnt including specific techniques or processes. The purpose of this was to recognise what had been learnt and the usefulness of the intervention and also to encourage reflection and the development of metacognitive skills

### **Feedback from learners**

The reflective process was reinforced by asking students to repeat the diagnostic test where they rated their information literacy ability. This included forty-nine statements that students were asked to respond to in terms of whether they agreed or disagreed using a 1-7 scoring scale. They were also asked to reassess their initial assessments of themselves. Again this encouraged reflection and also helped to indicate the efficacy of the intervention.

In practice the way the pre and post diagnostic scoring was presented proved to be cumbersome and too thought/time consuming particularly after an intensive half-day training and not all students completed this exercise limiting themselves to qualitative, general, statements. A separate visual scale, that could be ticked, for before and after, would probably have been more effective. Nevertheless, the results provide an indication of impact. Some students did go to the trouble of reassessing their initial scores or made general comments. All candidates indicated an increase in their information literacy and overall the outcome was positive. However, evidence of dramatic changes in opinion varied from individual to individual indicating that different people benefitted in different ways. Some benefitted far more than others. The most dramatic indication of benefit (by 5 out of 8 who completed this numeric ranking) was the recognition of the importance as well as the ability to do preparatory work before searching for information. This included the importance of identifying key words and identifying appropriate sources of information. All students felt better able to define their topic. Two students who had less experience of electronic sources felt their searching skills had improved significantly including the ability to broaden and narrow the search. All students who responded (3 out of 8) indicated a two to three point improvement in their ability to process texts. The majority felt that their initial assessment of their ability should be lower i.e. they were not as competent as they thought. One in particular felt that, with hindsight, that previously they had not been as conscious and strategic in their approach to gathering information.

The qualitative responses were both positive and critical. Positive responses included: *'a more systematic approach to find information'*, *'a greater intentionality about information gathering'*, *'it settled ideas, information and method and structure in writing analytical paper'*, *'very helpful in understanding information as a reflective and conscious process'*, *'confidence to use search techniques especially internet'*; *'reading through a document quickly'*, *'analysing / evaluating articles'*, *'mapping research domain and focus'*, *'process of using information to write analytical paper, including key word searching'*, *'it was good to learn the process systematically'*, *'using a*

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*framework to evaluate sources', 'being more conscious of the different processes for information retrieval / selection'.*

Critical comments included:

*'more time to do some of the exercises', 'more time to discuss collectively', 'could have been more participative ... could have used more of participants experience', 'more time, especially to have more practical use', 'start the course before', 'difficult to find exact pace for all', 'three hours is a long session'.*

Although the results were positive they do imply that more time should be devoted to this kind of activity. It would probably be better if more, but shorter sessions, were spread over a longer period of time allowing for more preparation. Interventions could be tailored to broad stages in the research process such as the: orientation, finding supporting material, processing information and creating the final product. Ideally information literacy interventions would accompany each assignment and be incorporated and linked to undertaking every assignment that required preparatory research. It would be good practice toward marks for information literacy reflection – especially in those assignments early on in the academic experience. This would enable students to become familiar with the norms, the processes, strategies, techniques and resources associated with independent study and apply them throughout their study. Although, it is likely that, they may need to be reinforced or taken to a higher level if subsequent tasks expected a higher degree of information literacy.

The point made by one student that more use could be made of 'participants experience' is particularly important. It is likely that there will be some students who have already developed aspects of their information literacy. From a pedagogic perspective it is important to build on and value previous knowledge. It is also evident that students can learn and are receptive to learning from their peers and this should be fostered. Time therefore needs to be taken to explore and share previous knowledge. Ideally an opportunity for individuals to focus on areas where they needed the most help would also have been useful, hence, catering for individual differences. However, to achieve this even more time would need to be spent on diagnostic exercises. Relying on the students' ability to identify those areas where they need help can be successful. However, students may not be aware of their information literacy needs or are only aware of rudimentary information literacy, such as a knowledge of sources. They tend not to be aware of how they can improve their ability to define a topic or their ability to systematically identify relevant information and extract and process useful information or present it in the most effective way. Hence it is not possible to entirely rely on self-diagnosis. It is also possible that there is a developmental aspect (Levy, 2009) to learning information literacy and that it takes time to reach the stage of being able to fully apply the critical thinking skills associated with processing information.

With regard to the overall aims and objectives of the initiative and enabling students to become more information literate and develop their academic information literacy the intervention was felt to be successful although it could have been improved. However, the following objectives were also specified:

- Reflect on how this learning process could be transferred to the workplace.

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- Reflect on how this learning process can be embedded in participatory frameworks that have evolved in developing countries.

It was felt that it had not been possible to adequately explore these issues. This was primarily due to the need to ground the intervention in the immediate task of the learners i.e. enabling them to complete their analytical paper and also due to a lack of time. It is also likely that to explore these topics adequately it would need to be done separately and in context. Studies that explored the information needs and information challenges and the need for information literacy within organisations directly involved in capacity development would be useful. It would be profitable to understand the significance of information literacy among specific communities, such as, policy makers or researchers or at a grass roots level in the community. Subject specific studies with people involved in a particular domain, such as health care, would also be effective. Such initiatives would highlight strategies that would directly contribute to the capacity building process, in this area, in developing countries.

#### Acknowledgements:

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## Appendix 1: diagnostic test

The information literacy module you will be taking part in is new for IDS so we want to learn about how well it works. To help us to do this we would appreciate it if you could spend a few minutes completing this self assessment questionnaire. Don't worry if you don't know some of the answers.

1. Enter your student ID
  
2. AFTER coming to IDS, which of the following have you used when searching for information? [can tick all that apply]
  - Statistical sources
  - Information from experts, officials etc.
  - Information from colleagues
  - Information from information staff
  - Information from the community
  - Reports
  - Reference works (e.g. encyclopaedia, dictionaries, thesauri)
  - News articles
  - Journal articles
  - Books
  - Briefing papers etc
  - Information from organisations via their websites (e.g. World Bank)
  - Online news sources
  - Online journal articles (full text)
  - Information via a library
  - Information via an online portals (e.g. eldis, R4D)
  - Information via a search engine (e.g. Google)
  - Information via an online full text database
  - Information via an online bibliographical index database
  - Information via Open Access repositories (e.g. dmoz)
  
  - Other (please specify) [open box]

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3. Indicate whether you agree or disagree with the following statements. TRY TO BE HONEST. DON'T FEEL YOU HAVE TO SAY WHAT MAY BE EXPECTED:

|  | Disagree |   |   |   |   |   | Agree |
|--|----------|---|---|---|---|---|-------|
|  | 1        | 2 | 3 | 4 | 5 | 6 | 7     |
| I have enough knowledge to discuss my Analytical Essay topic with my colleagues?   |          |   |   |   |   |   |       |
| I find it easy to specify the Participation, Power and Social Change subject area, identifying key words that describe the discipline. |          |   |   |   |   |   |       |
| I am confident I can identify the sources of data, information and knowledge relevant to the course.                                   |          |   |   |   |   |   |       |
| When I start a new assignment I try to determine what information I need by listing key words.   |          |   |   |   |   |   |       |
| When I start a new assignment I try to determine the type of information I need listing key sources.                                   |          |   |   |   |   |   |       |
| When doing an assignment I look for sources that are not on the reading list.  |          |   |   |   |   |   |       |
| I feel confident that I can find information that will help me undertake tasks, explore problems, get new ideas etc.                   |          |   |   |   |   |   |       |
| I consciously think about how I use information to learn about new things.   |          |   |   |   |   |   |       |
| It is important to be conscious about how I learn, find things out, use data, information and knowledge.                               |          |   |   |   |   |   |       |
| I reflect on whether I have adequately determined the nature of the problem and the information I need.                                |          |   |   |   |   |   |       |
| I plan my strategy in advance to find information in catalogues, databases and the internet.   |          |   |   |   |   |   |       |
| I make use of informal sources of information as well formally published sources (family, media, friends).                             |          |   |   |   |   |   |       |
| I check out how to search an information retrieval system before searching.  |          |   |   |   |   |   |       |
| I use the advanced search interface in information retrieval systems such as Google, Nexis etc.  |          |   |   |   |   |   |       |
| I type in the whole title of an article or book to find it.  |          |   |   |   |   |   |       |
| I use author names to find information.  |          |   |   |   |   |   |       |
| I use index terms to help retrieve documents.  |          |   |   |   |   |   |       |
| I use hypertext links to find additional information.  |          |   |   |   |   |   |       |
| I can narrow my search so only the titles are searched.  |          |   |   |   |   |   |       |
| I can narrow my search by asking for more than one word to be in the documents.  |          |   |   |   |   |   |       |
| I can narrow my search by searching for phrases using “ “  |          |   |   |   |   |   |       |
| I can broaden my search by asking for alternative terms to be in the document.   |          |   |   |   |   |   |       |
| I can broaden my search by searching for a word that has different endings (using *).  |          |   |   |   |   |   |       |
| I constantly adapt, change and refine my search strategy while searching.  |          |   |   |   |   |   |       |

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|  |  |
|--|--|
| Searching for one or two terms is usually sufficient.  |  |
| I reflect on my search strategy and think how it can be improved.  |  |
| I am able to quickly scan text and identify relevant information.  |  |
| I am able to judge the relevance of information I find when searching online.  |  |
| I apply evaluation criteria (authority, origin, relevance, bias etc.) to judge the quality and credibility of information I find.                                    |  |
| If a book is on the reading list and seems relevant I read it from cover to cover.   |  |
| If a book is on the reading list or seems relevant I first read the contents page, use the index and heading to see whether it is really relevant for my assignment. |  |
| It is important to find alternative and conflicting views on a topic.  |  |
| It is important to find views that confirm each other.   |  |
| It is important to find views that represent different stakeholders.   |  |
| I reflect on whether I have analysed and used information effectively and efficiently.   |  |
| I am able to cite/reference my sources using a recognised referencing style.   |  |
| It is important to reference any information that has influenced my ideas .  |  |
| It is important to put quotation marks around any text that has been copied from another author.   |  |
| I am able to present information in an appropriate format for other people or organisations (such as reports or proposals).  |  |
| I reflect on whether I have presented information effectively.   |  |
| I am able to store and organise the information I find and produce so that it can be easily found and used using folder, sub folders etc.                            |  |
| I reflect on how I manage my information.  |  |

4. When I search for information I experience the following problems [Lickert Scale Agree / Disagree]

- a. Lack of information
- b. Too much information
- c. Irrelevant information
- d. Poor quality information
- e. Not enough time
- f. Information retrieval systems / services are difficult to use
- g. Information retrieval systems / services are inaccessible

**Thank you** for taking the time to complete this survey. It will help us to evaluate this course and better understand your information literacy needs.