***Section by section preparation of a scientific paper***

|  |  |
| --- | --- |
| Module 6 | Mentorship in preparing scientific papers |
| Sub-module B | Section by section preparation of a scientific paper |
| Length of sub-module | Approximately 3 hours to 4 hours and 40 minutes |
| Sub-module summary | In this second sub-module, continuing to focus on mentorship in preparing scientific papers, we will now go on to discuss the sections of a paper individually, largely in an order in which it can work well to write them. You are encouraged to draw on your own (mentoring-related) experiences and the lessons gained from them, during discussions. |
| Equipment, visual aids and handouts (on the day) | PowerPoint projector, screen and laptop  Internet connection  Flipchart paper, pens, sticky notes  Put the **exit cards** up on the wall from the previous day or module (if applicable)  **6B-prep\_sections paper.pptx**  **HO1 cases to distribute.doc**  Sourced by trainer/s in advance**: a non-technical abstract**, for use as an example. |
| Guidance to facilitating learning activities | **Morning review** (5-15 mins)  Start off with some banter about what you or the participants did the previous evening, for example. Don’t make it about yourself – get the participants talking!  Next stand beside the **exit cards** on the wall and make some overall comments on the frequent themes. Say that you won’t have time to respond to all the cards but you will be commenting on the key ones. Invite further comments from the participants.  Remind participants of the learning contract on **6B-prep\_sections .pptx-slide 2** (on animation fade setting) if necessary.  Throughout the sub-module, trainer/s should refer participants to the **four reflection questions** on the wall and at the back of their handbooks. Trainer/s should encourage participants to makes notes in response to these four questions, at regular intervals (not just at the end of the sub-module or day).  **Sub-module summary** (2-3 mins)  Display **slide 3** and verbally present the sub-module summary above to set the scene. It is important that these points are shared with participants from the outset.  **Case 14: No madness in the methods, Case 15: Being double sure? and Case 16: Nothing to hide** (20-30 mins)  First, trainer/s should select their preferred case discussion method/s for Case 14, 15 and Case 16 from the ‘Guidance for trainer/s section’.  To encourage some moving about, one method could be to enlarge and then print out Cases 14, 15 and 16 (in **HO1 cases to distribute.doc)** and stick each one on the top of a blank flipchart paper (so there is plenty of room for writing or sticky notes beneath) This preparation should be done in advance and then each of the cases posted to the wall in different parts of the room.  Participants are then invited to discuss with each other and write their ideas directly onto the flipchart paper (or on sticky notes) under the case.  Allow some time for the participants to read and share any questions they might have on each other’s contributions and any comments or thoughts they might have raised for them. Encourage participants in the discussion to contribute any relevant real-life examples/experiences.  The major point to make sure is brought out in Case 14 is that how detailed a description of a method should be, depends in part on how well known the method is. Further detail in this regard will be provided next.  Case 15 is relatively straightforward and probably deserves just brief discussion. The main point that should emerge is that the text of a paper should not extensively repeat details from tables and figures. Again, this point will be further expanded upon in the next presentation.  The main point to come out of discussion around Case 16 is that noting limitations of a study is indeed appropriate.  Invite participants to add any new suggestions to their notes under Cases 14, 15 and 16 before moving on to the next topic.  **Group mentoring exercise: Methods, results and discussion sections** (65-90 mins)  The recommended method for organizing the groups for this exercise is:   * Organize participants into groups of three (you can be directive here to save time), then the trainer/s allocate each participant in the group with the letter M, R and D. In the instance where is a remaining one or two participants, they can double up on the letter R or D and join another group of three (to make a group of four). * Ask participants to remember their group of three (or four) and then instruct all the participants allocated the letter M to sit together, with the letter R to sit together and the letter D to sit together. Make sure the groups are sitting in different parts of the room. This will mean there are now three large groups. * Each of the three groups will be given a task to discuss and prepare. * Once the task is completed the participants will return to their original groups of three (or four) and carry out some mentoring.   The task for this exercise is as follows:   * Once the participants are in the three large groups (M, R and D) refer them to **Resource 16** in the participant handbook where they will find slides on the Methods, Results and Discussion sections of a paper. * Invite group M to concentrate on the Methods section task, group R the results section task and group D the Discussion section task. * Allow each group around 15-20 mins to discuss and prepare the task. Explain to the groups that after this time, they will be asked to return to their original groups of three (or four) and to carry out some mentoring with the other two (or three) members of their group. * Participants might be nervous about this, so stress that this is just a chance to practice, it doesn’t have to be perfect. Explain that mentors should take a relaxed, conversational approach with the mentees and that it is not a lecture.   **Full-group discussion** (20-30 mins)  Some additional points the trainer/s might want to add related to the methods section:   * Methods sections generally must state the manufacturers of equipment and products used in the research. * Many journals refuse to publish research on humans or animals if it has not been approved by a committee designed to ensure that ethical standards for research conduct are followed. * If researchers modify a published method, the methods section must state the modification(s).   Some additional points the trainer/s might want to add related to the results section:   * It is the core of the paper “No results, no paper”. * If the research has clear, focused findings, the results section may be quite short. * Findings need to be summarized (for example, by providing summary statistics) or to present representative findings rather than all the data in detail. * It should be part of the story being told about the research, rather than being only a “data dump” and that detailed data sometimes can be presented in online supplements to journal articles or otherwise posted online. * There are a couple of sources of information on producing tables and figures in **Resource 17** in the participant handbook.   Some additional points the trainer/s might want to add related to the discussion section:   * Starting with a summary of the main findings helps orient readers to what will be discussed, particularly for readers who begin by looking at the discussion. * The discussion should answer the question(s) posed in the introduction (or if hypotheses were posed, whether the findings support the hypotheses). If the answer still is unclear, the discussion should say so. * A common problem is a mismatch between what the introduction asks and what the discussion answers. An analogy to consider using is that it’s like asking “How was lunch?” and someone answering, “The weather is good today.” The latter might be true, but it’s not what was asked. * Reference Case 16 re: mentioning the strengths and limitations of the research. Noting major strengths is not immodest; it’s part of showing the validity of the study. Mentioning significant limitations is part of being truthful and generally works better than having others discover the limitations and think the authors did not know of them. * The discussion should put findings in their broader context and the broader context should have been presented near the beginning of the introduction. * While the introduction moves from general to specific, the discussion moves from specific (the research being reported) to somewhat more general (related research) to yet more general (broader implications). * If an article does not have a conclusions section, the last paragraph tends to serve as a conclusion, summarizing what is to be concluded based on the research.   Invite participants to share some of the action points they identified for mentees related to the methods, results and discussion sections. If not raised, it is worth highlighting that mentees could also look:   * At the methods, results and discussion sections of some papers in their target journal (and/or good journals) and use them as models. * In the results sections, they could note items such as the: length, organization, inclusion of subheads (or not) and number of tables and figures. * In the discussion sections, they could note items such as the: length, types of content, organization, phrases commonly used, citation of references.   If time remaining, invite participants to revisit **Cases 14-16** and to add any additional suggestions/ thoughts which have arisen from this exercise.  **Case 17: An amorphous introduction, Case 18: A reference request? and Case 19: Aghast at an abstract** (15-25 mins)  First, trainer/s should select their preferred case discussion method/s for Case 17, 18 and 19 from the ‘Guidance for trainer/s section’.  One method could be to divide participants into groups of three or four (try to change members of groups around so that participants get to work with different people) to discuss all three cases at once (in **HO1 cases to distribute.doc)**. Then bring the discussion straight back to the full-group to elicit the key points.  The point to make sure is brought out in Case 17 is to identify the appropriate content and structure of a discussion section. This will be expanded upon in the following presentation.  Case 18 is fairly straightforward; the main point that should emerge is that padding a reference list in order to increase someone’s citation count is not appropriate.  For Case 19, participants should not only identify the mentee’s proposed action as inappropriate but also identify the appropriate content and organization of an abstract. This will again be expanded upon in one of the following presentations and it may be helpful for trainer/s to show a relatively **non-technical abstract** as an example.  Invite participants to add suggestions to their notes under Cases 17, 18 and 19 before moving on to the next presentation.  **Mini-participatory presentation: The introduction** (10-20 mins)  Display **slides 4-8**and go through the points and questions to the full-group (in blue).  The trainer/s can add some of the following points and questions for participants to consider and/or to share with their mentees:   * Emphasize the importance of making clear by the end of the introduction what the researchers were trying to find out. * Mention that articles in the social sciences often have relatively long introductions. * Keeping the audience in mind especially important in reporting interdisciplinary research. The introduction may need to be geared quite differently depending on whether the research is being reported in a journal in one of the fields, a journal in another of the fields, or a journal that spans the fields and perhaps some other fields too. * Note that in some journals but not others, the main findings are stated at the end of the introduction. Perhaps ask participants what seems to be the norm in that regard in their fields. * Ask participants what can mentees do to gain a better understanding of what a good introduction section looks like? for example, look at introductions of some papers in their target journal noting the: length, types of content, organization, citation of references and use them as models.   Invite participants to discuss and pull out the main points related to the introduction section that they would want to share with the mentee Ed in **Case 17**. The trainer/s can elicit some of the points for full-group discussion, if participants show a strong interest in this topic.  **Participatory presentation: References** (20-30 mins)  Display **slides 9-11**and go through the points and questions (in blue and on animation fade setting) to the full-group.  The trainer/s can add some of the following points and questions for the full-group to consider and/or to share with their mentees:   * What do you think are the consequences of a mentee not citing content accurately? * Often, authors whose work is cited will be the author’s peer reviewers. Inaccurate references to their work will not impress them favorably. * To identify potential peer reviewers for a paper, journal editors often look at the paper’s reference list. * Inaccurate references may cause a reviewer to question whether the authors are careful researchers. * Ask participants what experience they have in using citation management software. Perhaps have one or more participants briefly describe their experience. * Emphasize that different journals have different formats both for citing references in text and for presenting references in the reference list. * Note that journals’ instructions to authors almost always say how to cite and list references. * As an example, note a mentee who cut and pasted references from the reference lists of several articles in different journals, thus ending up with a list with different references in different formats.   Invite participants in threes to discuss what they have just heard and come up with one pertinent question (related to what they have just heard) for the other participants and/or trainer/s.  Give the groups 2-3 mins to agree on what the question should be. One member from each group then asks their question to the full-group. Make sure only new questions are asked, rather than a repetition of what has come before. This is an activity to generate energy and wake participants up so keep the pace going.  Before moving on to discuss the abstract, refer participants to **Resource 18** in their handbooks which provides some information on the formats that exist for referencing and citations.  **Mini-presentation: The abstract** (3-5 mins)  Display **slide 12**and go through the points.The trainer/s can add some of the following points and questions for the full-group to consider and share with their mentees:   * Different authors like to draft the abstract at different times. Some like to draft the abstract before the rest of the paper, to help provide focus and direction. Others like to draft the abstract last, once they know what they are summarizing. * In any case, the abstract should be revised last, to ensure that it is consistent with the rest of the paper. * Abstracts often appear without the paper (for example in databases), and so they should be understandable on their own. Thus, they should not normally include items such as references and undefined abbreviations.   **End of day or sub-module reflection** (20-30 mins)  Trainer/s can share a summary of the day’s or sub-module’s activities and the highlights for them as trainer/s. Then invite participants to share their reflections on the day’s or sub-module’s work and impressions of the workshop.  Finish by asking participants to individually fill out exit cards. Display **slide 13** (on animation fade setting) with the instructions. Make sure the colours of the sticky notes or cards correspond with those named on the slide. They can be of any colour, as long as they are of three different colours, and preferably not white. |