

GUIDELINE FOR PUBLISHING FOR YOUNG WATER PROFESSIONALS

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PREFACE

This guideline is the product of the Young Water Professionals (YWP) Publication Workshop Series. The content has been developed based on the YWP Publications Workshops previously conducted in Malaysia and South Africa, respectively. The workshops have been organised by the IWA-YWP National Chapters in cooperation with IWA and Water Institute of Southern Africa (WISA) and supported by the Water Research Commission South Africa (WRC) and Universiti Teknologi Malaysia (UTM).

The workshops highlighted a need for publication guidelines for the YWPs. The contents of this book aim to advise and guide YWPs towards successfully publications of their papers. The authors have endeavoured to do their best to a comprehensive yet easy to read guideline and acknowledge that the materials presented are based on personal experiences in publishing in journals and as an Editor-in-Chief. Even if the guideline is followed to the letter, the authors cannot guarantee that your paper will be accepted for publishing. However, we can guarantee that you can rely on us and the YWP network to assist you in improving your manuscript to increase the chance of publication. Although the guideline was developed for the YWPs, it can be applied to different disciplines for young and senior professionals.

The publication workshops actually started with short seminars on publication. Professor Gustaf Olsson as the Editor-in-Chief of Water Science and Technology (WST) was invited to give the first series of publication seminars in China in 2006. As a Guest Professor at the Tsinghua University in Beijing and at Universiti Teknologi Malaysia (UTM) Malaysia he was invited to give publication seminars every year after 2006. Seminars were also arranged at some European universities. In 2011, at the 3rd IWA Development Congress & Exhibition in Kuala Lumpur, the IWA Publishing team arranged a special meeting

to discuss publication strategies. Professor Ir Dr Zaini Ujang, then the Vice Chancellor of UTM, proposed a series of 5-day publication workshops to be held at UTM in cooperation with IWA. UTM provided the Water Scholarship for the first cohort of 30 participants worldwide. The IWA President, Professor Helmut Kroiss, who was also the Editor-in-Chief of Water, Science & Technology (WST) and Professor Gustaf Olsson were key facilitators during the workshop series at UTM Malaysia between 2011 and 2016. The first series of three workshops in South Africa was conducted in January 2014 followed by the second series of three workshops in August 2016.

As a result of the increasing publication pressure, the interest in guidelines for publication has grown dramatically among the international community particularly the YWPs. Therefore, this publication guideline aims to provide a freely available and easy-to-read guide to help young writers as well as academia in producing publishable manuscripts.

Gustaf Olsson and Ashton Maherry
Authors

This booklet is the result of an amazing history which started in Kuala Lumpur on the occasion of the 2nd IWA Development Congress in Kuala Lumpur in 2011. The IWA publication committee chaired by Michael Dunn and me as a member from the IWA Board gathered some colleagues from universities to join us for a meeting at the Congress. The aim was to discuss how IWA in general and how IWA Publishing (IWAP) can contribute to enhance the career of young scientists worldwide. During our discussion in a group of about 6 persons the idea came up that one of the main causes for rejection of mainly young authors' papers is their insufficient quality caused by lack of knowledge and expertise both by themselves and by their supervisors regarding the quality criteria for the review process. The discussion ended by the statement that there is a need for education of young water professionals how to write a scientific paper as there is an increasing relevance of publication success for their career at least in academia.

I will never forget when Prof. Zaini Ujang, at that time Vice Chancellor of Universiti Teknologi Malaysia (UTM) at Johor Bahru, immediately made the spontaneous unbelievable suggestion to make the first "publication workshop" happen at UTM in Johor Bahru with organizational and generous financial support by the University. This was the starting point of a great activity in IWA and UTM which resulted in the first "publication workshop" in Johor Bahru in March 2012. Prof. Zaini Ujang not only provided the financial support for the participants but also installed Norhayati Abdullah, Senior Lecturer at the Faculty of Biosciences and Medical Engineering as program coordinator. Norhayati and her excellent team organized this first and also the following workshops at an absolutely very high professional level. Even this was something which had to be invented. For the scientific contents there was of course strong support from Prof. Zaini and Prof. Zulkifli and others at UTM and mainly Gustaf Olsson

as workshop leader. IWA secretariat helped mainly in attracting YWP from all over the world. The extraordinary success of this first workshop was strongly supported by the human atmosphere resulting from the work of Norhayati and her team: a combination of a perfect organization and an amazing social program which resulted in the transformation of about 40 persons, young researchers, lecturers and professors, from all over the world into a great “family”.

Also Gustaf, the main author of the slides and responsible for the program and me as co-moderator of the workshop were continuously learning during this week and we were amazed about the progress the YWPs made from Monday to Friday. The progress could be monitored by the improvement of the participants’ presentations of their work at the beginning and at the end, the improvements in their draft publication, in the increasing glow of the participants’ eyes and cheerfulness of their communication.

Those of you who will read the following pages in order to increase the quality of your scientific paper can learn from the history above that the goal of publications is improved communication in the scientific community which has two basic aspects: one is sound scientific methodology but the second is a human aspect – publishing needs a dedicated human environment to which the author(s) have to adapt and contribute in order to avoid friction. It also can be learned that in many cases it is the power of one personality who is willing and able to catalyse a new initiative. As a reader of these guidelines you should never forget that you can be such a personality in your career.

Helmut Kroiss
IWA past president

It is with great pride that the South African Young Water Professionals (YWP-ZA) presents this Publications Handbook.

YWP-ZA National Publication Roadshows, hosted in 2014 and 2016 respectively, was organised by YWP-ZA with the financial support of the South African Department of Science and Technology (DST) and Water Research Commission (WRC). The aim of these Roadshows was to address the gaps and effectively take the voice of young professionals to the world by allowing them to become published writers. The importance of this Handbook for YWPs cannot be understated: young voices deserve to be, and indeed must be, heard in the academic world, whether from Africa, Asia or North America. As the funding for universities worldwide becomes more and more constrained, students support services are often the first to be affected.

For me this Handbook represents the essence of what the YWP programme is all about: It supported the capacity building of the organisers and participants and the expectation is that it would develop the same in the users of the handbook. It was created through inter-generational (and international) collaboration to create a quality product with direct inputs from the well renowned expert in the field of publication development, Prof. Gustaf Olsson and the first-hand experience of young professionals and students who struggle to publish. The Handbook is founded on experiences from workshops held in South Africa and Malaysia, which extrapolated such local experiences to create a globally applicable product. It was driven by YWP volunteers for YWPs because they wanted to make an impact that is larger than themselves.

The volunteer spirit which created this Handbook is remarkable. Like all YWP activities no single individual was

remunerated for their contribution and their time freely given. This demonstrates what a committed group of volunteers can achieve and the difference they can make. It is for this reason I am proud of this product; it embodies a group spirit I am proud to count myself a part of. The South African National Committee has worked hard with our partners (IWA, WRC and the Water Institute of Southern Africa (WISA)) to make this Handbook a reality and while all products are a group effort, Mr. Ashton Maherry, Mr. Stuart Woolley and Prof. Gustaf Olsson deserve special mention. This would not have been possible without them.

Finally, I hope this guideline will be of use to many aspiring young water researchers!

Nora Hanke-Louw
2016-2016 YWP-ZA National Chairperson

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Universiti Teknologi Malaysia via collaborations with IWA and the Malaysia YWP National Chapter under the auspices of the Malaysian Water Association (MWA) for the organisation and provisional funding of the IWA-UTM International Publication Workshop Series in particular Dato' Seri Ir Dr Zaini Ujang (former UTM Vice Chancellor, now Secretary General, Ministry of Energy, Green Technology and Water, Malaysia). The program planning for the UTM workshops was chaired by Prof. Dr. Zulkifli Yusop. Dr. Norhayati Abdullah not only coordinated the courses but as the member of the IWA-YWP steering committee and its chair in 2014-2016 she has been a true champion to make young professionals aware of the need for these courses.

Professor Helmut Kroiss for sharing his deep knowledge and wide experience at the IWA-UTM International Publication Workshop 2011-2016, and Dr. Tamsyn Sherwill (Editor of Water SA), Dr. Tobias Barnard (Univ. of Johannesburg) for assisting and facilitating the lectures in South Africa.

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The Malaysian Young Water Professionals for their organising the workshops at UTM.

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WHY PUBLISH?

- Publishing is the crucial quality test!
- It is the condition for open research
- You will get known
- You meet other researchers and can compare results
- You do not buy knowledge – you exchange it!
- You build up a network of colleagues

Journals remain important custodians of scientific endeavour, advancement, and credibility. As a result, "**publish or perish**" is indeed a quip that is well known in academic circles. Publishing is crucial to increase the impact of your work. If your research is not published in a journal or a well-known conference it simply does not exist! Researchers must be able to find your research and the peer-review process that journals use ensures the credibility of your research. Research which has not been peer reviewed has no indicator of scientific rigor or quality. Thus, it must be possible to find your peer-reviewed research.

A naturalist's life would be a happy one if he had only to observe and never to write.

Charles Darwin

Your published paper becomes your certificate of expertise that lasts your entire career. Your first published

paper is your entry to the world of research, and the first paper you write as lead author proves your leadership ability and that you can confidently stand alone as a researcher.

To successfully reach and influence your target audiences requires careful planning of both the writing and publication processes so that your papers are not only read, but **understood**, and found **meaningful** and **influential** by the readers.

Should you wish to embark on a career in research you will be required to publish often and in high impact journals. Academic people are evaluated based on number of publications, impact of the journal and how often each article has been cited. Other researchers referencing your research is an indicator of the impact that your work has. It is often better to have an article in a low impact journal with many citations than an article in a high impact journal which is never cited. The trifecta for any researcher is to **successfully publish**, to publish in a **high impact journal** and to have that article **cited frequently**.

Writing is easy. All you do is stare at a blank sheet of paper until drops of blood form on your forehead.

Gene Fowler

COMMUNICATE – WITH WHOM?

WHAT IS YOUR VISION?

Your vision is the purpose and the reason that you write.

Academic wisdom is publish or perish but real wisdom is “where there is no vision, the people perish” (Proverbs 29:18). Especially in the water sector we publish our research to provide safe drinking water and save people’s lives. **Remember your vision!**

WHO IS YOUR READER?

Before you start writing you should identify your reader. The reader is not someone who will just read your research but someone who you wish to influence and inform. The key message will determine who your reader is. The journal you select will depend on the reader. Do you wish to target a specialist, a wider audience or an interdisciplinary audience? The audience should influence your style of writing.

WHAT MAKES YOU READ A PAPER?

Title: The title is the first part of your paper which catches the readers eye so you need to make sure it is informative and catchy. Ask a friend, not your closest colleague if the title can be understood.

Abstract and Introduction: The abstract is read next to identify the message of your paper. The reader should be able to determine why the paper was written and the context of your research from the introduction. You must ask yourself if a non-specialist can understand the reason for your paper.

Figures: The figures need to be informative and clear. Do not hesitate to write a caption that explains the figure.

Conclusion: The conclusion needs to restate the key

message of your paper. You should also ask if your sponsor or manager would be happy with the conclusion of your research.

After the first glance – do **you** wish to continue reading the paper?

START WRITING!

After you have determined your vision and the reader the next step is to start writing. While a journey of a thousand miles begins with a single step, a paper begins with a skeleton outline after which you add the meat to the bones.

SKELETON OUTLINE

We recommend that you start with a skeleton outline of the paper before you start writing full sentences. The skeleton outline should be written in bullet or point form and must clearly state the following:

- Central message
- Key points
- Key outcomes

What is the central message of your paper? Spend time on this as it will pay off in the long run.

1. Develop a central message of the manuscript
 - Use 20-25 words
2. Define the materials and methods

- The methods you used to carry out the study
3. Summarise the question(s) and problem(s)
- What was known before you started the study?
 - List the key points.
 - What did you do to answer the question(s)?

Exercise:

1. Write down **three central points** of your paper
2. Summarise your paper in **one sentence**.
3. Describe your work to a colleague in one minute.
4. **Why** was the work done?

Once you have worked on your skeleton outline then the next step is to take it to your supervisor and/or co-authors to review before you start writing any text. Only once you have consensus with your supervisor and/or co-authors on your skeleton outline should you begin writing and adding meat to the bones.

ORDER OF WRITING

When writing, you will be required to do **many iterations** of each section and the paper itself. You will be required to revise and revise continuously. Often the published paper will have very little resemblance to your first draft as it is revised and improved during the writing and

reviewing process.

Beginning:

- Objective
- First outline of title
- First outline of introduction
- Your vision, possible conclusion

Continuously:

- Materials, methods, results, references

When the work is completed:

- Abstract
- Introduction (upgraded!)
- Conclusions, the message.
 - Logically derived from the results.
- Final editing of the Title

Firstly, you should focus on the objective of your manuscript, a first outline of the title and the first outline of the introduction. This can be written before you begin collecting your data for your research. You should include your vision and you might even be able to write your possible conclusion, although you must let the results guide your conclusion. During the data collection or experimentation part of your research you should continuously update the materials, methods, results and references. It is easier to do this during your research

than it is to only start writing when all the experiments and research work has been completed. Once you have finished your experiments and collected all your data you can write the abstract, upgrade the introduction, write your conclusion with a focus on the message and ensure that is logically derived from the results. Once completed you should complete the final editing of the title.

Start with the **introduction** and **conclusion** and then finish with **introduction** and **conclusion**

Tips:

- Once you have finished your paper you must revise and revise...and revise.
- Ask your colleagues to review your manuscript before you submit.
- Look for an experienced writer to check the language and grammar.
- Ask your friend or partner (who is not a specialist!) to read the introduction
- Revise again!
- Ensure that the Introduction matches the conclusion
- Hypothesis and goals and vision should match the conclusion.

ROLE OF LEAD AUTHOR

The lead author is the manager of the paper writing process and does most of the work. The lead author

assumes the main responsibility for the paper including the work and the writing. The lead author co-ordinates the writing of the paper, the submission of the paper and handles the review process with the journal editor. The lead author sets the deadlines and is responsible for reminding co-authors about the deadlines and submitting their contributions on time.

ROLE OF CO-AUTHORS

Co-authors typically participate in the experiments, model building or simulation. Co-authors provide ideas for the work and not just data. Co-authors contribute during the paper writing phase and are responsible for writing sections of the paper and handling the reviewers' comments for those sections. Co-authors should continuously give feedback specifically on the methodology, results and discussion.

Co-authors are **responsible for the full paper**, not just their section and should be able to present and answer questions on the full paper.

“Authorship should be limited to those who have contributed substantially to the work”

“Authors are strongly encouraged to indicate their specific contributions”.

Proceedings of the National Academy of Sciences of the
United States of America

Who is not a co-author

See the Acknowledgements on page 26.

ROLE OF SUPERVISOR

The supervisor's role is to provide ideas and give constructive feedback during the whole research process and not just during the paper writing phase.

A supervisor does not necessary have to write sections of the paper, but is involved in guiding the student on what to write and actively influences the content. The contribution must be significant in order to meet the requirements of a co-author.

ORDER OF AUTHORS

There is **no universal standard** on the order of authors for academic papers. The order of authors is different in different countries and disciplines. You should discuss the order of authors with your supervisor and co-authors at the start of the paper writing phase and be open about issues of co-author and contributions. In the water sciences, we suggest that the lead author should be first. There after the authors can be listed in order of decreasing contribution or in alphabetical order.

In math, we use the Hardy-Littlewood rule. That is, authors are alphabetically ordered and everyone gets an equal share of credit. The one who has worked the most has learned the most and is therefore in the best position to write more papers on the topic.

Teixira da Silva J.A. and Dobránszki J. 2013. Should the Hardy-Littlewood Axioms of Collaboration be Used for Collaborative Authorship? The Asian and Australasian Journal of Plan Science and Biotechnology 7 (Special Issue 1) pp 72-75.

In some disciplines, notably biology, the supervisor is placed last in the list. Discuss with your supervisor upfront as to what they require of their students and speak to your colleagues to find out if this is common practice or not.

Order of Authors:

1. Lead author first and then in order of decreasing contribution to the paper
2. Lead author first and then in alphabetical order.

LANGUAGE AND STYLE

Communicating clearly is the goal of written piece as and this applies to any manuscript. If you want your work to have impact, then people need to understand it. Determine what you're trying to say before you start writing it and think in terms of an outline and do not get lost in the details. Write direct sentences and keep them simple and short, especially if it is not your first language. Remain brief and organise your thoughts before you start writing.

Tips

- Be sparing with adjectives & adverbs.
- Try to remove "very," "extremely," "highly". For example, try changing "a very good response" to "the expected response".
- Assuming you believe what you are about to say, just say it.

- Phrases such as "It is clear that" and "The fact is that" are empty verbiage.
- Look for omissions.
- Look for repetitions.
- Consider using synonyms.
- A Thesaurus is very useful!
- Write as you speak.
- Put the paper aside for a while.
- Edit, edit, edit...
- Use the spell checker!
- Do not trust the spell checker!

EFFECTIVE WORDS

Don't use	Better
Based on the fact that	Because
For the purpose of	For/to
Fact	Evidence
Prove	Support
Plays an important role	Is important because
Decreased number of	Fewer
Time period	Time
Longer time period	Longer
Brown in colour	Brown
Round in shape	Round
A number of	Some
Has been shown to be	Is
By means of	By
It is possible that	May
In order to	To
During the course of	During
A majority of	Most
A great number of times	Often
In other words	Thus/hence/therefore
Despite the fact that	Although

First of all	First
At this point in time	Now
Due to the fact that	Because
Employ, utilise	Use
High degree of accuracy	Accurate
In the event that	If
Prior to	Before
Subsequent to	After
It is interesting to note that	<i>Eliminate!</i>
It may seem reasonable to suppose that	<i>Eliminate!</i>
“novel”, “first time”, “first ever”	<i>Be careful!</i>

WHAT MAKES A SCIENTIFIC PAPER?

A scientific paper does not just list the results but requires that you **interpret** them. This is done in a discussion section. Are the results expected? Is there anything that surprises you? Explain the results!

A REVIEW PAPER

A review paper is more than a literature review or a survey of literature. A review paper is an in-depth critical review that summarises the current state of understanding on the subject and often requires an expert in the field to do review. Typically, literature reviews are a standalone chapter in the dissertation. Whilst literature reviews are important, it should form part of the introduction and not a separate paper on its own. A journal is not likely to accept a Masters or Doctorate literature review for publication.

Literature Reviews:

A journal is not likely to accept a Masters or Doctorate literature review for publication. You can save the editor and your time by incorporating your literature review into the introduction of your main paper.

NOT ABOUT PERFECT ENGLISH

An academic paper is not about writing in perfect English and the role of the reviewer is not to correct the language in the article but to review the content.

WRITING TIPS

- From the beginning of the project or the thesis write in simple English.
- For the first iteration just write down your ideas and do not worry about the style of the language!
- Write when your energy is high and not when you are tired!
- References – having read a paper, write the reference directly and your critical review of the paper regarding its relevance for your publication
- Write quickly. Do not worry about words at this stage, just ideas. Keep going. Leave gaps if necessary.
- Expressing yourself in your own way will help you to say what you mean
- Write without editing. Do not try to get it perfect the

- first time.
- Use the headings from your outline
 - Write the paper in parts. Do not attempt to write the whole manuscript at once

HOW TO SELECT THE BEST JOURNAL FOR YOUR PAPER

When selecting the best journal for your paper you should read the scope of the journal to make sure that your topic falls within the scope of the journal. Make sure you examine and read several recent issues of the targeted journal so that you are aware of the content of the papers which have been successfully published in the journal.

The journal you select will determine the style of the paper, specifically if the audience is specialist or multidisciplinary.

Do not look at **impact factor** of the journal. Look at the aims and scope of the journal so that you reach the right audience. This has a higher probability of **impact**. The Best journals are not necessarily the ones with the highest impact factor.

INTERNATIONAL OR NATIONAL

The target audience will determine whether you want to publish in an international or national journal. If your work

is of national relevance then you may wish to publish in a local journal. If you wish to publish in an international journal and reach an international audience then you have to be explicit in the international relevance and linkages in your manuscript in order to increase the likelihood of publication. You will also need to reference the international literature more in your introduction.

OPEN ACCESS

Open Access stands for unrestricted access and unrestricted reuse.

Public Library of Science shorthand definition (www.plos.org)

Open access journals are a growing group of journals that aim to make publications freely available and with unrestricted use. Although these publications are made freely available there is often a publication cost or an article processing charge associated with publishing. These costs should be requested before submitting if they are not on the website. Some open access journals offer the peer review process.

For your first paper we do not suggest going open access but encourage you to explore open access at a later stage in your career.

This arena of open access publishing is set to change drastically in the future.

PREDATORY JOURNALS

Predatory journals, more commonly in the open-access

journals, are those journals that charge publication fees without providing the typical editorial and review services associated with legitimate journals. For first time author(s) we recommend sticking to more widely known journals in order to avoid predatory journals. Some countries provide a national list of accredited journals, including open access, that they recommend publishing in.

IMPACT FACTORS

The journal impact is a measure of the frequency with which the **average** article in a journal has been cited in a particular year or period. The impact factor is a proprietary metric published annually by Thompson-Reuters in its annual Journal of Citation Reports.

A journal's impact factor is the number of citations in a 2 year period divided by the total number of articles published in the same period.

An impact of 5.0 means that, **on average**, the articles published in that journal within the past 2 years have been cited 5 times. The impact factor should only be considered in context. There are inherent differences among fields of intellectual inquiry that result in natural differences in the impact factor. The impact factor should only be used to compare journals **within the same field** of scientific specialisation. The impact factor as a metric only applies to journals.

Impact factor should **never** be used to assess the work done by individual researchers.

WRITING THE PAPER

TITLE – CATCHING THE ATTENTION

Why

'The effect of heating the albumen and vitellus of the *Gallus gallus domesticus* contained in calcium carbonate in H₂O to 373.15 K'

when

'Boiling a chicken egg in water'

says it?

Keep the title as short as possible but still informative as the title “sells” the manuscript. Express only one idea or subject in the title and ensure that the important words are placed first. Avoid abbreviations. The title must make the reader interested to continue reading the rest of the paper. Sometimes posing the title as a question can attract the reader’s attention. The use of subtitles in the title can be useful.

Title:

- Short
- Informative
- Sells the manuscript
- Important words first
- Subtitles can be useful

KEYWORDS

Use 3-6 descriptive keywords to describe the manuscript. The keywords should be precise and not include general keywords like “wastewater treatment process”. Keywords and the title are used for searching papers. The words of the title should not be repeated as keywords as the title typically is included in the search results.

Keywords:

- 3-6 words
- Precise not general

INTRODUCTION

Early in the project you should sketch the introduction to clarify your thoughts. After the whole paper is finished you should complete the introduction to make sure that it is linked to the conclusion. Your paper is not a text book so the introduction does not need to cover all the available literature but rather the literature relevant to

your paper. You should also avoid reference to fashionable or hot topics which are not relevant to your publication.

Introduction:

- State the purpose of the paper – the research question - early in the introduction!
- Do not repeat general knowledge
- Do not review all studies that have ever been published on the topic
- Motivation for the research – **why did you do the work**
- Remember: by reading the introduction the reader will decide if he/she will continue to read the paper

If you can express your results in just one sentence – DO IT!

Your introduction should include the objective of the research and manuscript and the problem/research question that you addressed. Provide a concise background to your research, focussing on where the gap in the existing knowledge was and how your research addresses it. Quote only literature and research that has direct bearing on the problem that you are addressing. State your hypothesis and the suggested

solution to the problem. You may also wish to give a big picture of the results.

Exercise:

1. What is the vision of the research?
2. What is the Problem: the question to be addressed?
3. What is the Hypothesis: the suggested solution to the problem?

Give the abstract and introduction to a colleague or a friend who is not familiar with your work and ask them if it makes sense.

Tip: Try putting your last sentence of your introduction first. Typically, when we write scientifically we conclude with the most important sentence. Try taking this sentence and put it first so that the reader does not have to read the entire introduction to get to your key message.

We suggest ending the introduction with the following: “The rest of the paper is outlined as follows ...” for example: the rest of the paper is outlined as follows: Section 2 details the materials and methods used; Section 3 presents the results; Section 4 discusses the results of the experiments; and Section 5 concludes with the key findings and recommendations for future research.”

MATERIALS AND METHODS

The materials and methods section describes **how** you

did it. Your research should be possible to verify and repeated by anybody else. Describe the methods and not only “I used the software XYZ and found...”. Start with a few paragraphs that will qualitatively describe how you approached the problem. This will prepare the reader to better understand the details of the experiments, simulations or analysis methods.

Always a balance between **brevity**
(cannot describe every technical issue)
and **completeness**
(the reader must understand what happened)

RESULTS

The results section is where you present the experimental results which are then discussed in the next section. The results should be described **qualitatively** in a paragraph before the numbers are presented in detail. This makes it easier for the reader to interpret the numbers when they are presented without getting lost in the detail.

Show only the experimental results that are **relevant** to your objectives and conclusions and which you **intend to discuss**.

If you can summarise the results in one figure, then use only one figure. Typically in a paper there is only space for two to three figures. Tables are useful but should not be too long, too detailed or present all the raw data.

Tables should only contain key results. Details of the results can be published on a website or in an internal report. In some instances you may be able to present the raw data in an appendix.

The data you present in the results section should lead you and the reader, via the discussion section, to the conclusions.

Figures

Figures are crucial for your research and an informative figure or table can replace many words. Because space is limited in the paper the whole message should be captured in one or two figures. The nomenclature and abbreviations should be explained in the figure or in the figure caption rather than having the reader search the text to understand the figure.

An informative figure can replace many words

The paper will probably be printed in black and white while online versions may be in colour. Requesting that figures are printed in colour typically incurs a fee from the journal. Ensure that the figure is legible in black and white and only use colour where it is absolutely necessary.

Avoid putting too many details in the figure and ensure that it is easily readable. The caption should be informative and not repeat information. Design each table and figure to be understandable on its own, without reference to the text. Organize the tables and figures in such an order that they tell a story.

Tables

Are the numbers in your table realistic and does the table make sense? The reviewer might start with the table to look at a summary of the results. If there are errors or misuse of numbers in the table, then the reviewer will assume there are more errors in your research.

Numbers

Numbers can be misused and abused in research and are one of the main reasons for papers being rejected. The numbers from equipment or software should not be “copied and pasted” or used without interpretation. Always check the accuracy of your equipment and the accuracy and detection limits of chemical analysis.

Use minimum number of significant digits:

23 ± 7 correct

23.4 ± 6.6 not correct

23.4 ± 0.6 correct

Use the symbol \approx to mean approximately equal to rather than \pm

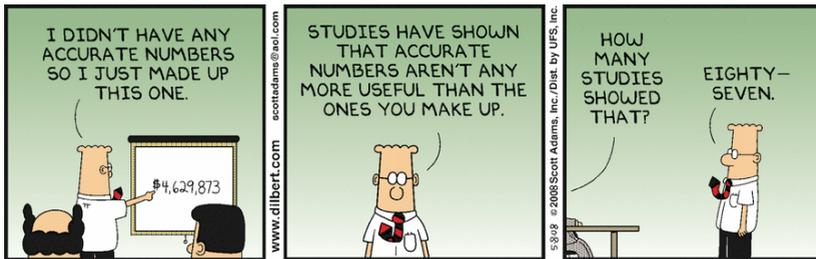
Put space between numbers and units:

Ex: 75 kg. Exception: 75%

Statistics

Be cautious in the use of statistics and statistical packages. Before applying statistics look at the data and interpret it qualitatively. What trends can you visually see when you look at the data and plot the data? Are you able to see correlations or time series trends? Is the data

normally distributed in which case you may use means and standard deviations. If the data is non-normally distributed then standard deviations and means are meaningless but the use of medians might be more appropriate. Are you able to explain the outliers in the data? After you have inspected your data then look at what statistics you can use to support your interpretation.



The mean is the average value and the median is the middle value in a list of numbers (from the smallest to the largest).

Data Quality

The quality of the data must always be checked and inspected. If the data has outliers can they be explained? Are they real outliers or are they outliers because the instrument or experiment was being changed in which case can you exclude them in order to better interpret the results. If you cannot explain the outliers, then state that in your discussion and include it in the recommendations for future research. Do not attempt to hide results that you cannot explain.

Compare different measurements for example flow rate

versus concentration. Does the peak in one variable correspond to a peak in another variable? Does the data have negative concentrations? Does the data have zero value, missing values or below detect limit values?

If you are using standard deviations, then how many values are you using to calculate standard deviations? As a rule of thumb do not use standard deviations if you have a sample population of less than 20.

DISCUSSION

The discussion is the heart of the paper and the results should be clearly presented. The main function of the discussion is to answer the questions that were posed in the introduction. It is not sufficient to present the results but you must **explain** them.

The **discussion** is what makes a paper **scientific**.

Explain and discuss results that may be surprising and do not leave them unexplained as this will be picked up by a reviewer and you will then have to respond to them in the review process.

Lastly, edit, edit, edit

CONCLUSIONS

The conclusion is the “**take-home**” message of the paper and must be possible to derive from the results and discussion. In the conclusions the reader will find out how successful you were. The conclusion is not a summary of

the paper but should be short, concise statements. The conclusions should contain no reference, no “why” and no explanation, but should simply state what you found and what is the take home message.

Conclusion

- **is not** an extension of the discussion!
- **is not** a summary of your paper!
- has **no** references!
- should be **short, concise** statements
- will also show implications for **future research**

ACKNOWLEDGEMENTS

The acknowledgements are where you thank people who contributed to the research but their contributions did not qualify them for co-authorship.

These could be

- Advisors
- Financial support
- Proof-readers
- Suppliers of material and/or figures
- Someone who ran the experiments or provided software support but did not contribute to interpreting the data or the manuscript.

You should always ask permission from the person before you include them in the acknowledgements.

REFERENCES

It is important to refer to what research has been published previously. Always document your findings and sources. Self-citing should be used with discretion but it is important that you refer to at least more than 5 other references. If most of the references are your own papers then this may be a reason for your manuscript being rejected.

Typically 20-30 references

The recommended amount of references is between 20 and 30 with not too many references. References should include recent references as well as original references. Make sure that at least one reference is from the last 5 years. Always check that a reference is cited in the text.

The references should be understood by an international audience (usually in English) and should be retrievable by a librarian. The journal editor will check automatically if the references can be accessed online.

Follow the Journal Publishing format and check which referencing style and format is required. A reference management software package will assist in changing the reference style but it not always necessary when there are less than 30 references.

If you copy a figure from another paper then you should give the source (e.g. from Olsson and Maherry, 2016). In addition, you are responsible for obtaining copyright clearance for any material, figures or tables that have been published elsewhere, including a dissertation. You may email the journal editor or the university to request

copyright clearance for existing figures.

If you “**directly quote**” then use quotation marks and a reference. If you **paraphrase** then just add the reference.

PLAGIARISM AND CHEATING

Cheating today is considered much more serious than earlier and it is a lot easier to detect. In the future better methods of detecting cheating may be applied to research published today, so do not cheat as you will be caught out. Maybe not today but definitely in the future. The definition of cheating has also changed over the years and there are higher ethical standards now.

Breaking the rules includes the following:

- Submitting the same paper to more than one journal at the same time. When you submit a paper to a journal you sign over copyright of that paper to the journal and submitting it to multiple journals is a breach of copyright.
- Submitting previously published material
- Data fabrication and falsification
- Improper author contribution and attribution
- Plagiarism

If breaking the rules are so serious then why do authors cheat? Sometimes it can happen by accident, or due to publishing demands or to increase personal status or due to internal research group fights. All authors accept responsibility for the entire paper, including if a student wrote part of the paper and left out references, or cited

the wrong sources, and this was not checked by the supervisor or other authors before submission.

Breaking the rules with regards to authorship include a new author to an old paper, adding an author that was not involved, omitting an author that contributed substantially to the manuscript, a supervisor publishing a PhD students work without their acceptance, adding spouses or partners as authors or a student publishing results in a local journal without the supervisor being informed. Authorship is now being tested by journals that require email addresses of authors upon submission who then receive an email asking “are you the co-author of this paper?”.

Plagiarism is becoming easier to detect. Cut and paste, often directly from the Internet, is now tested by journals. Plagiarism includes using results stolen from an old paper. It is plagiarism to cut and paste because “I could not do it better than the old author” without correctly citing the source. In some instances, an author has stolen a full paper including all tables and figures but just changed titles and a few headings. As more reports are made available electronically, this is becoming easier to detect. You do not want to have a scandal in your career due to cheating which you did 20 or 30 years ago, but was detected due to better antiplagiarism software. Self-plagiarism, where you copy and paste text from your own report or paper, is still plagiarism and will be detected when that work is made available on the Internet.

“Salami” is also considered breaking the rules. “Salami” is where you take research which would be acceptable for one manuscript and slice it like a salami into smaller papers and submit each one in the hopes of increasing

your successful publications. A good editor and reviewer can detect when this occurs and it is highly likely that the paper will be rejected or accepted with major revisions that would incorporate the other sliced pieces into it.

Cheating

Be careful with **citations**

Be careful about who should be an **author**

Behave **ethically** with respect to people involved in the research

IWA Publishing and the Editors of the journal are committed to maintaining the highest standards of ethics in reviewing and publishing your submissions to this journal. Please review the following statement of these fundamental principles and indicate your acceptance before proceeding with your submission.

- *Your paper is your **original work** and where you have included the work of others this has been fully and appropriately acknowledged.*
- *Authorship of the paper must include all those who have made **significant contributions** to the work, and they should be listed as co-authors. Persons who have not contributed significantly to the work must not be listed as co-authors.*
- *As corresponding author you must ensure that all co-authors have **approved** the final version of the paper and have agreed to its submission for publication.*
- *You have not already published in another journal a paper describing essentially the same material, nor is your paper currently being considered for **publication in another journal**.*
- *You should disclose in your paper any **conflict of interest** (financial or other) that might be construed to influence the content of this paper. **All sources** of financial support should be disclosed.*

***Acceptance:** Before indicating your acceptance of these principles on behalf of co-authors, you confirm that you have informed all co-authors of these principles and are accepting them on their behalf.*

IWA Publishing Ethics Statement for Authors.

SUBMISSION PROCESS

After you have decided which journal you would like to submit to, spend time to read the journal instructions to

authors which will include:

- Reference format
- Length of paper
- Format of paper
- Instruction for figures
- Submission procedure

In addition, you should be realistic about the rejection rate for the journal you are submitting to. Nature immediately rejects around 65% of all manuscripts submitted and only publish around 8% of all manuscripts submitted (2013 data). The rejection rates (March 2016) for Water Research is around 80% (Impact Factor 5.53) and for Water Science and Technology is around 76% (Impact Factor 1.11).

Before you submit ensure that you **review the paper with a fresh eye** before you send the paper to the publisher.

Tips

- Show your paper to two colleagues
 - One knowing the area who can give you technical advice
 - One who is a non-specialist and can tell you if the paper communicates well.

WHAT HAPPENS ONCE YOU SUBMIT

The Editorial Board defines the rules for acceptance for the journal. For most journals the papers are submitted online via an Editorial Manager (www.editorialmanager.com) although some journals still require submission via email. The editorial manager will

allow you to indicate the topic and automatically transfers to the topic editor.

EDITORS ROLE

The editor is responsible for ensuring that only the best and most relevant papers to the scope of the journal are published. The editor will decide whether the manuscript is **rejected upfront** or if it should be sent for **review**. At least two reviews are needed. The authors and the reviewers will know who the editor is, but the authors will not know who the reviewers are. Based on the reviews, the editor makes the decision to **accept/modify/reject**.

Important criteria for the editor is that the probability that the paper will be read and cited by others should be high in order to increase the impact factor of the journal. In addition, the results should be interesting for an international audience and not only of regional or local interest for an international journal.

Editors and Reviewers look for:

- **Relevance** to the journal scope and objectives
- **Originality** – what is new about subject, treatment or results?
- **Clarity** and quality of writing – does it communicate well?
- **Conclusions** – are they valid and objective?
- Good, short **title**, **keywords** and **abstract**

WHAT MAKES A GOOD PAPER TO AN EDITOR

A good paper is driven or inspired by technological, industrial, management, environmental, economic or social **challenges**. A good paper should contribute **new scientific methods** or new applications of known methods. The **scientific methods to get the results should be appropriate**. The paper should also describe **new directions** and **early findings**.

A paper should tell a good story

The paper should trigger constructive discussions and increase the probability of the article being cited. It should contain adequate references and include good illustrations and tables. The paper must be of interest to and comprehensible by an international audience.

A good paper has a good description of the work, which includes the following:

- Clear language
- Good graphs
- Clear problem and objective statements
- Clear message of the results
- Easily understood with a good flow of explanations
- Specific information
- The story is built up consistently
- No repetitions or redundancy in the paper

A good paper has a well described material and methods such that another researcher would be able to repeat the research. The experimental procedures must be accurately described. The data should be comparable and the results justified and relevant and should validate the approach used.

A good paper will have a good reference list which contains all the relevant literature and makes it possible to compare the results. The paper should also encourage communication of research.

A good paper should advance the level of knowledge and contain **one message** which is reliable, valid and answers a specific question. A good paper is not too long and follows the instructions for authors. The typical length of a paper is 6000-8000 words including figures and referencing.

REASONS FOR REJECTION: EDITOR

An editor may reject your manuscript for numerous reasons:

- There is insufficient new and interesting information in the paper
- The paper is too commercial (essential advertising a product or a company)
- The paper's English is too poor to be understood by an international audience (use a proof-reader if necessary)
- Local issues with insufficient interest for an international audience
- Lack of history of the study (no literature study)
- Lack of discussion or conclusion
- Too few references or mostly self-references
- Data collection without comparisons
- Lack of quantitative information (data, tables, etc.)
- Too long (consult the journal's *Instruction to Authors*)
- Findings not generalised or used to build theory
- Low probability of it being cited

Some submissions are intrinsically unsuitable for publication in the journal. It is helpful to all concerned if they can be screened out from the review procedures straight away. This avoids wasting the time and effort of authors, editors and reviewers.

Format reasons include the following:

- Content matter outside the scope of the journal
- The English is too poor to be readily understood
- Not properly structured as a scientific paper
- Introduction, Methods, Results, Discussion
Must include: Abstract, keyword, conclusion
- Inadequate reference list
- Paper too short (< about 3000 words) – probably

- too little information
- Paper too long (> 5000 words). Mostly asked to shorten the paper
- There may be special reasons, then motivate!
- Paper promotes a commercial product

Editorial reasons for upfront rejection include the following:

- Lack of novelty (including repetition of well-established results)
- Lack of interest (triviality of results)
- Incoherence of work or its description
- Plagiarism

REVIEW PROCESS

Should your paper not be rejected upfront then at least two reviewers will be selected to review the manuscript. Reviewers do not receive remuneration for the review and volunteer their time to the journal. Reviewers are given a deadline to review the manuscript after which another reviewer will be selected to review.

REVIEWERS ROLE

The reviewer assists the editor by advising whether the paper should be accepted, accepted with minor revisions, accepted with major revisions or rejected for publication. Should revisions be required, the reviewer is responsible for being explicit about what revisions are needed.

Peer-review is essential to the research process and ensures that the quality of research is maintained for the

journals. The review process improves the manuscript and everybody's manuscript has room for improvement.

HOW TO RESPOND TO REVIEWERS

The best way to respond to a reviewer is not to respond immediately. Wait at least 24 hours until you can separate your emotions from the process. Try to figure out what the reviewer is trying to say. Often it is the tone of the reviewer which is upsetting rather than the actual comment. If it is unclear then ask your colleagues and co-authors to assist you.

Reviewers are only human and it is easy for them to forget that there is a person behind the manuscript. Reviewers can also make mistakes and you are entitled to disagree with the reviewer provided you justify it. Respond to each comment from the reviewer and be polite and courteous. Be sure to thank the reviewer for giving up their personal time to review your paper, especially if it is a thorough review and improves your paper.

If the reviewer is unable to determine what is new or what the contribution is that your paper makes, then this is because it is not clear in your paper and you need to rework the key messages so that it becomes clear. If the reviewer recommends additional literature, then make sure you read the literature and reference it where necessary – they are only trying to improve your paper.

Tip:

- Assume that your response to the reviewers will be publicly available and only respond in a

professional tone.

WHAT DOES THE EDITOR LOOK FOR IN RESPONSE TO REVIEWERS

Firstly, make sure you adhere to the time frames from the editor when you respond. Should you need an extension then request one up front rather than waiting until the last day. Make sure your responses are courteous and polite and that you respond to every comment from the reviewer. You do not need to include every recommendation from the reviewer in your manuscript but you need to respond to each one. You are entitled to disagree with the reviewer provided that you justify your response to the satisfaction of the editor.

The editor will check that you have responded to all of the reviewers' comments to their satisfaction and if you disagree with the reviewer then the editor will check that your responses are appropriate and justified. The reviewer will indicate if they are willing to review your manuscript again after you have incorporated the reviewers' comments or if your publication is acceptable for publication without additional review. In instances where reviewers' comments are greatly divergent then the editor may request an additional reviewer to review your manuscript.

HOW TO RESPOND TO REJECTION

Do not take it personally or be obsessed about it. When you are emotionally calm, then analyse the editor's and reviewer's responses and determine the reason for rejection. It may be that your paper is outside the scope

of the journal or that your research needs further development before it can be published. Before submitting your paper to another journal make sure that you revise your paper and make the key messages clearer. Even a successfully published manuscript can be improved. If your manuscript was rejected because of the language then you may wish to hire a proof-reader to improve the language before submitting to another journal.

The peer-review process is not faultless and it may be that you would have better success with a different journal and different reviewers.

If you are determined to publish your research, then you may want to look at presenting it at a conference and having it published in the conference proceedings.

Every researcher has had a paper rejected by a journal and you are **not alone** in having to deal with rejection. As you become more experienced in publishing you will receive less rejections especially as you learn to self-edit and self-review your manuscripts.

HOW TO PRESENT YOUR PAPER AT A CONFERENCE

When presenting your paper at a conference remember that you only have time to present the key issues and a summary of the entire paper. Start with the key important message – the conclusion. This leads to the “why” and eventually the “how”. If you run out of time, then people would not have missed the key content. The purpose is not to describe all the details and methodology but to

motivate the audience to read the paper.

TIPS FOR SLIDE

- Maximum 5-10 lines on one page. Never put too much text on a slide as then people read the slide instead of listening to you.
- ARIAL is a font-type which is easy to read, and no characters smaller than size 20.
- Use diagrams and figures instead of tables, and improve the diagrams so that they are easily understood and highlight or circle what the audience should focus at.
- Never copy printed material that cannot be read by the audience.
- Plan for almost 2 minutes per slide so for a 20 minute talk you will use 10 slides.
- Choose colours with care
 - Text and background colours should contrast
 - Dark letters on a light background is more legible
 - Most projectors have variations in the colour that is projected
 - Avoid backgrounds and pictures except where it adds value to your presentation
 - Avoid red-green combinations as many people are red-green colourblind.
- Strive for simplicity and visibility
- Practice with feedback and then practice some more.

TIPS FOR PRESENTATION

- Speak slowly and distinctly. This is especially important for presenters from English speaking countries.
- Never compensate the lack of time for your presentation by increasing the speed of speaking. When you speed up people will stop listening. If you are running out of time, take a deep breath and continue. We recommend starting with the conclusions so that if you run out of time then the audience has still received your key messages.
- Test with colleagues and friends whether your explanation of the contents or diagrams is sufficiently clear and how much time you need in order to explain diagrams and tables.
- Consider the expertise of the audience and tailor your presentation so that everybody can understand you.
- Do not waste your time by presenting text book lectures
- Avoid too much animation as it is seldom appreciated and often does not go according to plan during the conference presentation.
- Talk to the audience and not the screen
- Be enthusiastic
- Start with your concluding points
- Respect time limits
- Market yourself and who you are
- Practice Practice Practice!

FURTHER READING

IWA Publishing Instructions for Authors:
<http://iwaponline.com/content/instructions-authors>

A Guide to Publishing for Academics: Inside the Publish or Perish Phenomenon. Jay Liebowitz. April 8, 2015 by Auerbach Publications. ISBN 9781482256260 - CAT# K24053

The Academic's Guide to Publishing. Rob Kitchin and Duncan Fuller. 2005. SAGE Publications Ltd. ISBN: 9781412900836

ABOUT THE AUTHORS

PROFESSOR GUSTAF OLSSON

Gustaf Olsson is a former IWA Publishing Award holder. As the Editor-in-Chief of Water Science and Technology and Water Science and Technology: Water Supply (2005-2010), Gustaf is highly experienced in the publishing and academic domain. He has also served as a member of the IWA Board of Directors and IWA Strategic Council. In 2012 he was the awardee of an Honorary Doctor degree at the Universiti Teknologi Malaysia (UTM) as well as an Honorary Membership of IWA. In 2014, Gustaf was appointed as the Distinguished Fellow of IWA. Gustaf facilitated the previous YWP-ZA Publications Workshop series in 2014 and the IWA-UTM International Publication Workshop series at UTM, Malaysia between 2011-2016.



ASHTON MAHERRY

Ashton Maherry is a Senior Researcher and the YWP-ZA National Secretary, Project Manager for the Second YWP-ZA Publications Workshop Roadshow and Programme Chair for the 8th IWA International Young Water Professionals Conference. Ashton is passionate about capacity building the young professionals and is the. In his private capacity, Ashton is a freelance consultant specialising in GIS, groundwater and freshwater conservation.

INTERNATIONAL ASSOCIATION (IWA)

WATER

Water underpins every aspect of human and environmental existence. The severe water challenges facing the world today require an unprecedented global response. IWA members and staff are situated in 130 countries worldwide, forming the largest international network of water professionals working towards a water wise world.

For Further Information: <http://www.iwa-network.org/>

SOUTH AFRICAN YOUNG WATER PROFESSIONALS (YWP-ZA)

The South African Young Water Professionals (YWP-ZA) Programme is focused on bringing people working in or interested in the water sector together in a meaningful way. YWP-ZA is a network of people who are passionate about all aspects of water and its intrinsic linkages to people, economies, development, nature, dignity and life itself.

For Further Information: www.ywp-za.org

WATER RESEARCH COMMISSION

The Water Research Commission (WRC) is a dynamic hub for water centred knowledge, innovation and intellectual capital, providing leadership for research and development through the support of knowledge creation, transfer and application. It engages stakeholders and partners in solving water-related problems, which are critical to South Africa's sustainable development and economic growth and it is committed to promoting a better quality of life for all.

For Further Information: www.wrc.org.za

WATER INSTITUTE OF SOUTHERN AFRICA (WISA)

The WISA vision is the promotion of professional excellence in the water sector, through building expertise, sharing knowledge and improving quality of life. WISA, your professional, comprehensive, independent, volunteer, water sector community institution, that provides diverse membership benefits, and support the Africa water sector in a representative and effective way. It strives to be an effective and efficient organization, subscribing to the principles of its memorandum of incorporation and complying with process of good corporate governance.

For Further Information: www.wisa.org.za

UNIVERSITI TEKNOLOGI MALAYSIA (UTM)

Universiti Teknologi Malaysia (UTM), an innovation-led and graduate-focused Research University. It is located both in Kuala Lumpur, the capital city of Malaysia and Johor Bahru, the southern city in Iskandar Malaysia, which is a vibrant economic corridor in the south of Peninsular Malaysia.

For Further Information: www.utm.my