Bangladesh J. Environ. Sci., Vol. 45, 95-104, 2023 @ BAED ISSN 1561-9206

KNOWLEDGE BASED UNIVERSAL METHODOLOGY FOR STRENGTHENING OF SCIENTIFIC RESEARCH, WRITINGS AND PUBLICATIONS

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1. ABSTRACT

More reading of related journal articles, writing 2-3 times or more for building a sound scientific article for journal, involvement minimum course work, develop project work and dealing with project, come to touch with a good/renowned scientist and all these are the universal guideline for buildings successful scientist and philosopher. There successful schematic models are the pillars of research covering a strong publication in journal.

Key words: Guideline, scientist, research, philosopher, article publication, journal.

2. Guideline and suggestions given by renowned scientists and philosophers regarding research and writing of scientific articles for publication in journals

1) Academic teaching and research or research building with professional career is a God gifted award where human strong desires and activities work as a single factor.
2) According to Japanese Professors and scientists good researchers are those they must work most of the times in field, lab. or research related activities where past academic good/strong career is not the factor/criteria for the sound researchers.
3) More involvement in research, more writings and publications make a man true researcher, and ultimately a great one as strong/renowned scientist and/or philosopher.
4) Here two factors work uniformly like knowledge based research (KBR) or research based knowledge (RBK) are important to establish as renowned/great researchers, scientists and philosophers.
5) Prof. Dr. H. Brown (author of more than 800 publications) Prof. of Chemistry, Indiana University, USA, was awarded the Nobel Prize in 1979 who was good friend of my supervisor Prof. Paasivirta, Dept. of Chemistry, Univ., Jyvaskyla, Finland. During taking of Nobel Prize in December 1979, he visited our Dept. of Chemistry, (then there I was a PhD student) where I personally discussed about the success and failure of research and building career as good researcher. Prof. Brown then congratulated me for my new invention and discoveries of pesticide residual works and some of my analytical methods for detection of metabolites and residues for food safety against hazardous pesticides in 1976-79. He concluded with few words, “Minimum class load (5-10%), and maximum involvement lab./field/other research (80-90%) and writing and publications (>90%) are the best criteria for developing a perfect/successful researcher where standard journals are encouraged”.
6) Prof. Paasivirta (renowned scientist, more than 500 publications, nominated 2-3 times for Nobel prize (unofficial) where his supervisor in Finland was awarded the Nobel Prize in 1943, worked with him at his Dept./lab. at Jyvaskyla, Finland; replied me in 1980 regarding handling of good research and to be good researcher-minor class load for MS/PhD courses, most of the time involvement in research, reading, writing and publishing of articles in journals, participation and presentation of articles related confs./seminars” where I published 30-35 articles in Inter. Journals and participations of more than 20 conferences with him in 1976-84 at different universities of Finland, Norway, England and Ireland.
7) In 1976, then I was a PhD student at the Dept. of Chemistry, Univ. of Jyvaskyla, Finland where Dept. added 2 courses for proper handling of modern lab. equipments for the PhD programmes but

they added 3/5 more courses for undergraduate level. So, then a committee with Prof. Ratikainen, Dept. of Botany, Prof. Arstila, Dept. of Cell Biology, Prof. Dr. Hukta, Dept. of cell Biology and Prof. Mukola, Dept. of Biochemistry advised me to collect course materials those completed at BAU, Mymensingh during undergraduate programme. Accordingly, I did it. They evaluated the courses and advised me, "You studied enough, no need to study those courses; use more time on research and paper publications; this is a time, you develop your career in research." So then quickly, I handled research with TLC, GC, GC-MS, IR, NMR analysis techniques with pesticides in soils, crops and food materials and established myself as great environmental scientist in Europe (then 20-25 publications were done in Inter. Journals 1977-85).

8) In December 1979, there was a group discussion meeting among 5-6 Nobel Prize winners of 1979 in Stockholom, Sweden, and the programme, I directly enjoyed on Finnish TV channel where there was a question how science, scientific project and scientists can be reached to a successful (renowned one) goal. I remembered, there was Prof. Salam (Pak. scientist too), Prof. H. Brown and others. They said with a single voice, "Junior researchers as even PhD worker can take strong project in the beginning of career and they should work/proceed with same way with research, and finally, of course they will reach the goal."
9) In 1993, as Head (Chairman), Dept. of Soil Science, BAU, Mymensingh. I the only Bangladeshi, (not as a VC) participated International Conference of University Presidents (VC's conf.) at Kobe, Japan where more 600 Vice Chancellors of more than 100 countries were attended in that conference. There, I presented an article on "Higher education in Bangladesh" (50 pages, printed in the conf. proceedings). There was discussion how research achievement can be established, and there most of the VCs/presidents of universities said, "Encourage junior teachers for more involvement in research, add minimum class load, quick promotions, financial benefits, develop sound research facility, conf. participation and discussion; -they are good, but no practical universal guideline on the concepts."
10) In 1996, I visited Dept. of Chemistry, Univ. of Punjab, Lahore, Pakistan as Visiting Prof. where I supervised 2 MS students, delivered Lectures on pesticide residues and environmental pollution of soils and crops to students, and presented scientific articles on, "Discoveries of analysis methods of pesticides in soils, crops and food materials and invention of hazardous metabolites of MCPA from crops and vegetables" to the Pak. Chemistry Association in Lahore where I came to know Institute of Chemistry, Punjab Univ., Lahore only accepts MS and PhD students for best research and no scope of undergraduate programme. So, for good research MS/PhD students are important where teachers, students, and researchers can contribute a lot for successful/strong findings and again sound research projects are important where teachers, students and researchers can contribute for success/achievement.
11) Fig. 1. is the universal guideline model regarding the success stories with mission and vision of researchers/professors for ultimate final goal.

3. Universal guideline and suggestions developed by author Prof. Dr. M.A. Sattar to be a successful researcher and publication of scientific articles in journals

1) Must have great interest and strong patience for developing life time career in research.
2) Have to enjoy 100% research work/activities, and there would be no question in life, then has taken a wrong decision for career.
3) Must have academic Master and/or PhD or equivalent degree with research based (thesis) topic/area.
4) Try to select academic research area at the beginning of research career but changing it several times strongly affect the career for fulfillment of great success/achievement.
5) The great/renowned researcher dynamically change partially/fully (for a while) research area with knowledge based new scientific concepts for need of science or national development (Fig. 2-3).

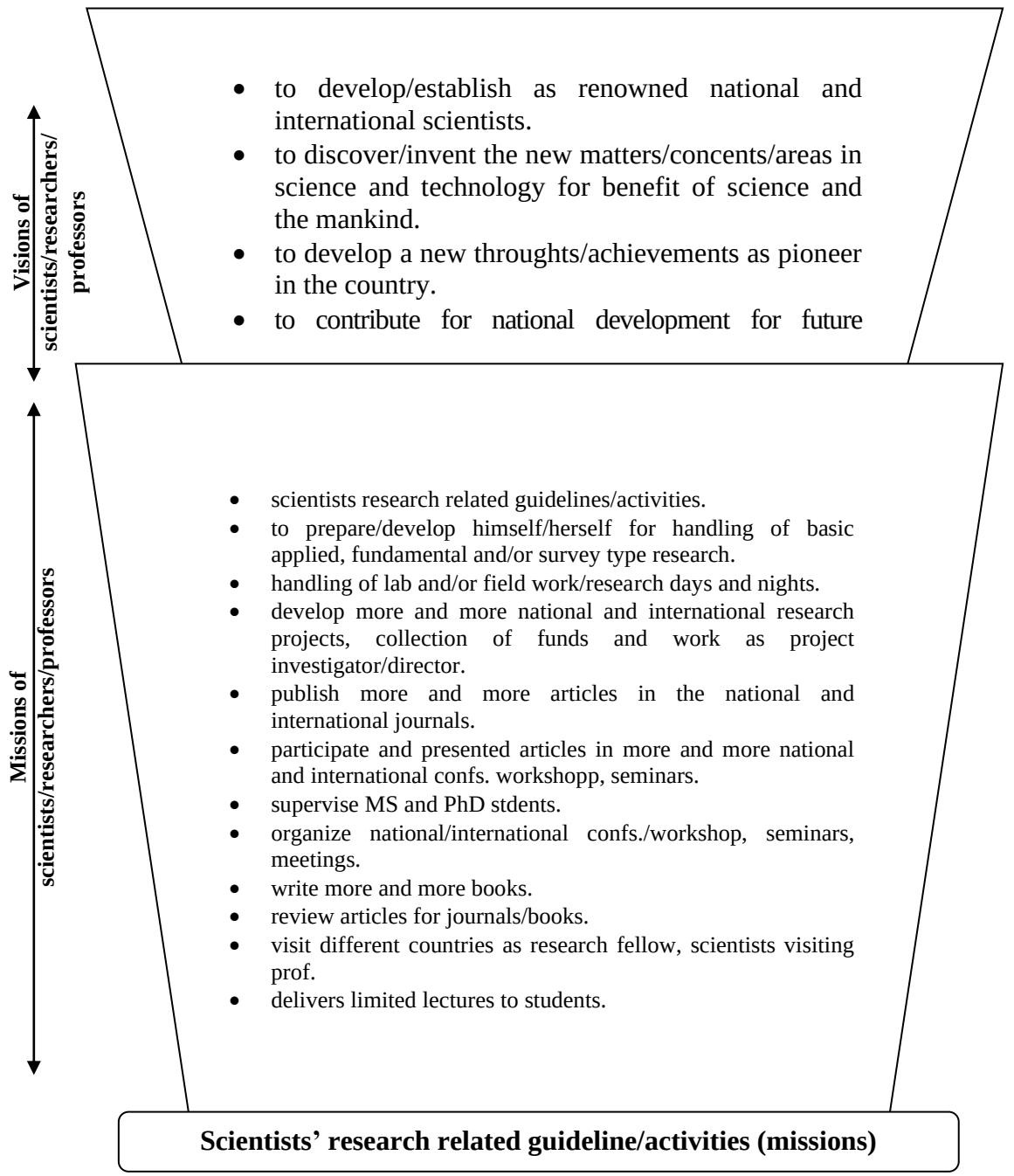

Fig. 1. Missions and visions of scientists/researcher/professors at university or research institutes at the global village (Sattar, 2022)

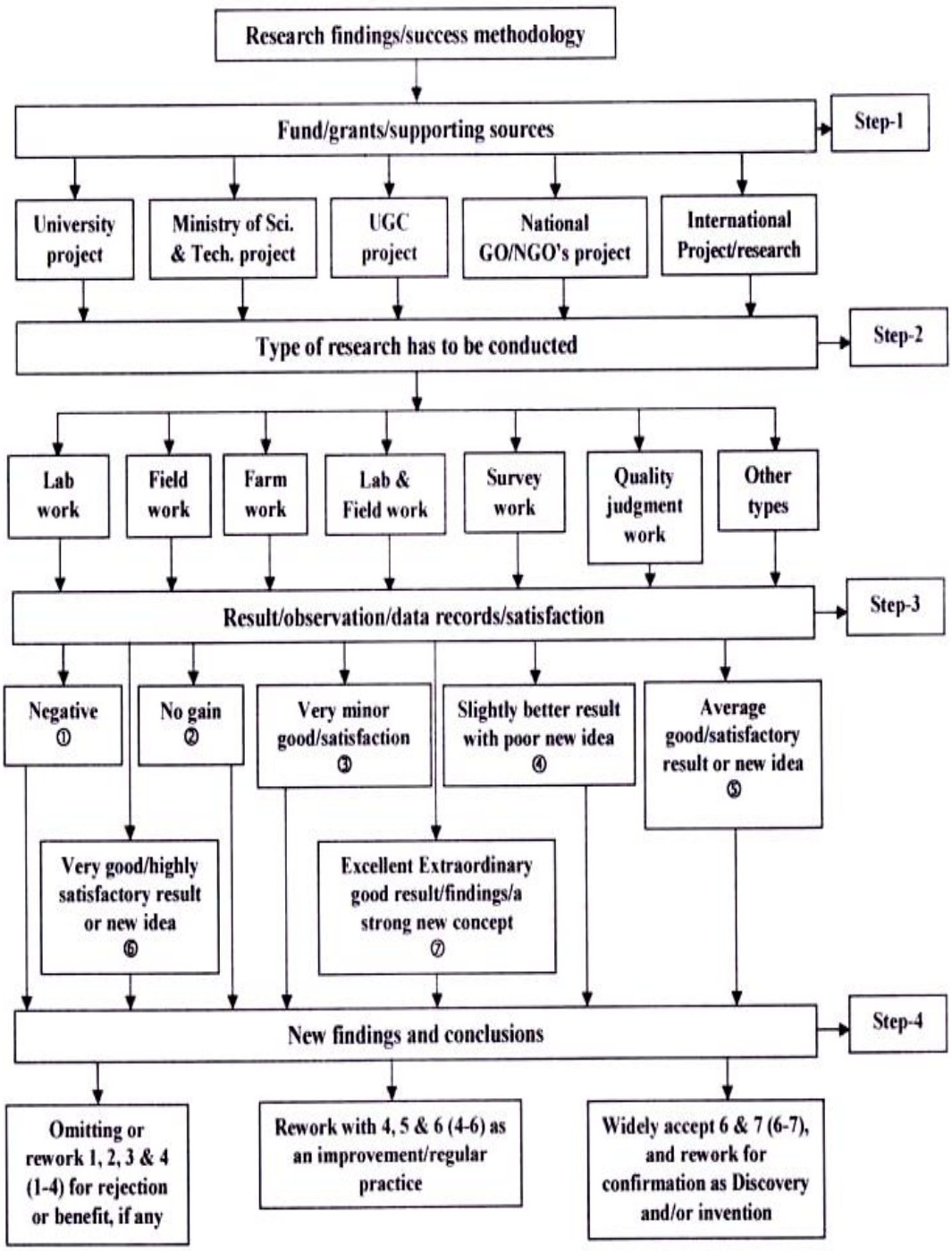

Fig. 2. A schematic guideline for successful handling of research with a conclusion of new finding/discovery or invention (Sattar, 2022)

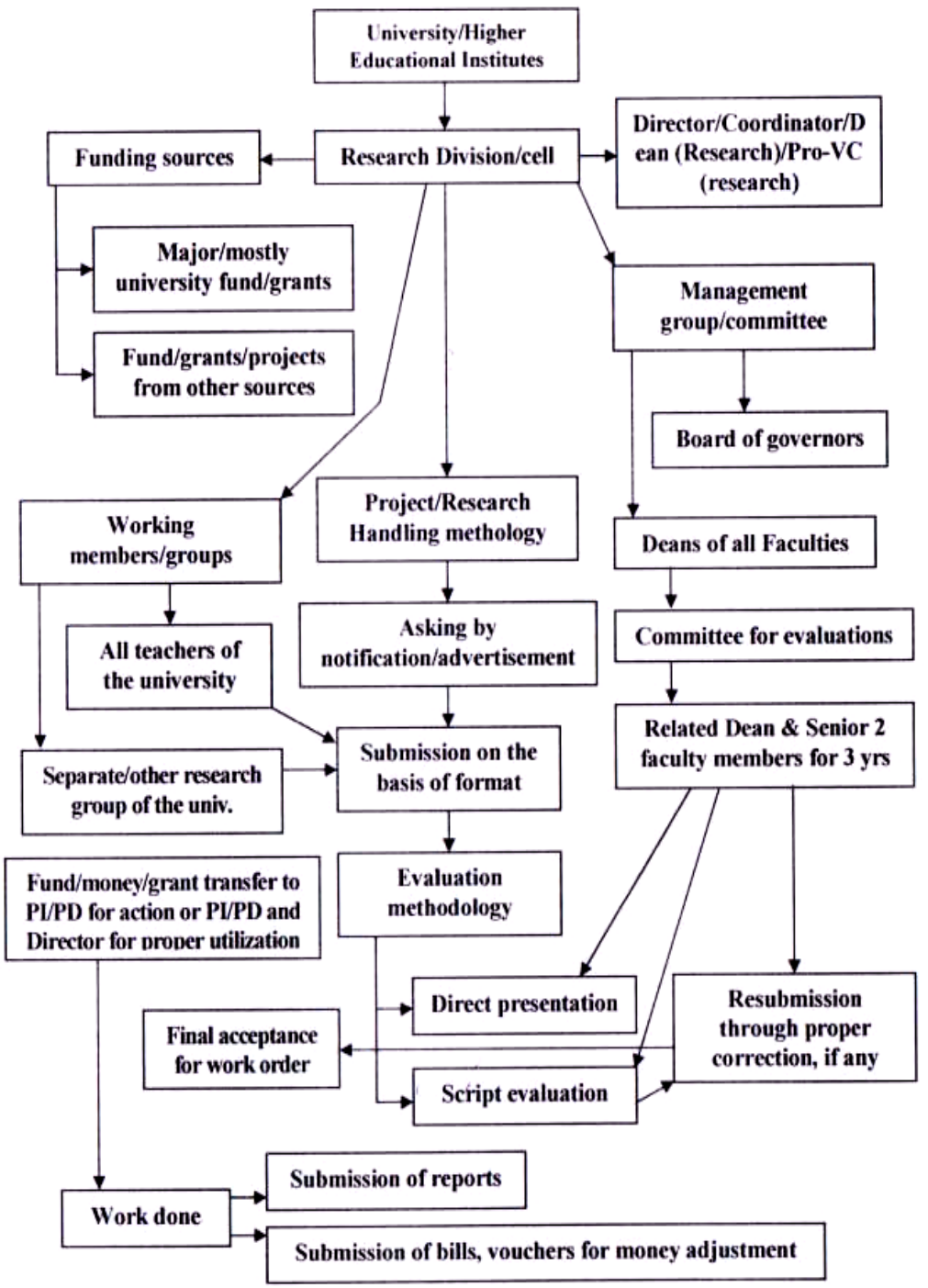

Fig. 3. A schematic outline of university/higher educational institute research project management guideline (Sattar, 2022)

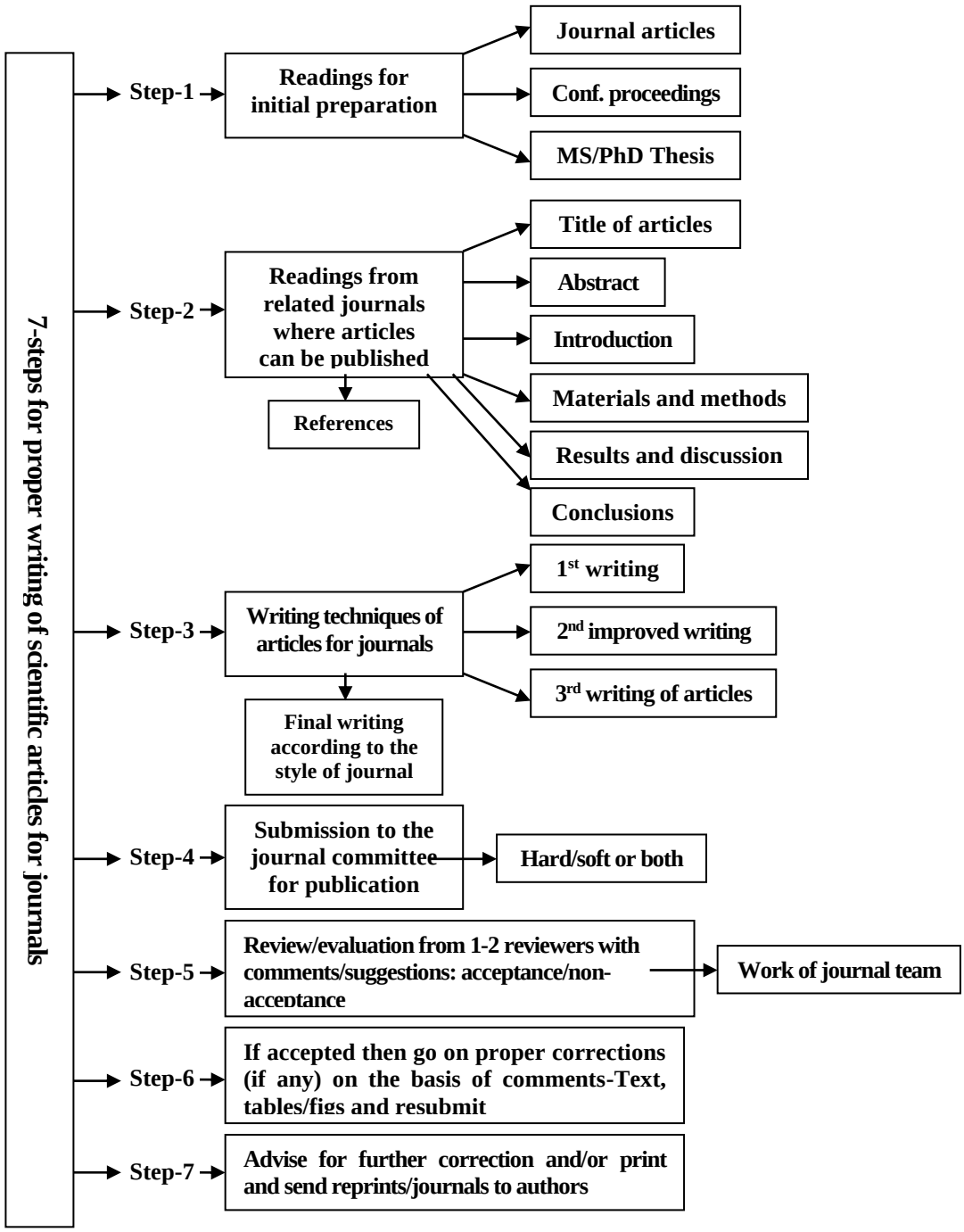

Fig. 4. Basic concepts and guideline of 7-steps for writing of sound scientific articles for journals (Ref. This article; Sattar, 2023)

6) Initially during writing Master's thesis must have go through at least 10 related or more research topics/theses.
7) Read at least 10 related articles/reprints from publications in national/international journals.
8) During PhD programme must read more than 10 or as many as related or near related PhD theses through proper following the chapters-Abstract, Introduction, Methodology (Materials and Methods), Results and Discussion, Summary and Conclusions, and References.
9) Read at least 10 or as may as related publications/reprints from national and international journals.
10) For writing of Master and PhD theses-One has to write 2-4 times, the more the better for producing an excellent thesis/Dissertation.
11) producing an excellent thesis/Dissertation.
12) With poor thesis one may get degree but never be established as renowned researcher.
13) Strong research interest, enjoyment of everystep of research work, day and night thinking and involvement-on research, finally produces a man like a tree is known by its fruit.
14) Collect at least ten to hundreds of research articles through library works from national and international journals, and must go through them with enjoying mood.
15) Through reading of theses and journal articles, prepare yourself how to write/produce or develop the contents like (1) Abstract, (2) Introduction, (3) Methodology (Materials and Methods), (4) Results and Discussion, (5) Summary and conclusions or only conclusions, (6) References (Fig. 4).
16) For all cases of publications-the style of letters and the placement of the headlines should be properly followed that is the major requirement of most national and/or international journals.
17) Paper headlines should be brief covering main discovery and achievement normally with one to two lines bold, capital etc i.e. each journal has its own requirement.
18) Author's name(s) with address(s) should be checked and written according to particular journal's requirement where there is no credit of authors.
19) Abstract or summary normally covers one para and even may go upto one page and never not more than that although thesis summary may go upto 2-3 pages.
20) Abstract only covers how the research has been handled (beginning to ending) with few words or few sentences and the main (real) discovery results with few data but not tables or figures. Here interpretation done with best results with statistical significance (if needed). Abstract chapter may require references only 0-5% articles i.e. usually no need of references.
21) Abstract may run more than one page for special cases but usually/normally never require any sub-headlines.
22) Introduction is the backbone of scientific article where background importance, present importance and role of necessity in its part, in its philosophy, and for the dynamic achievement of science as well as for mankind. For the strength of the area here some supporting articles with references are important. A tree is known by its fruits, and where in introduction one has to stand a strong tree, i.e. introduction proves the paper/article richness.
23) Thesis carries separate chapter as Review of Literature but in article Introduction maturity comes through review's analysis. Here sub-headlines may come, and may cover even some pages too.
24) With all description in introduction, there should be one to two or three major objectives showing an wonderful view of the contribution i.e. the magical investigation has to be done.
25) Introduction may sometimes include figures and/tables as review description with references.
26) Methodology or Materials and Methods is the own work of author(s) that has to be presented properly covering time, place/location, field, lab. using of equipments so that others can judge/evalute and apply the techniques, the activities/methods, covering the proper collection of necessary data. This is the challenging matter-loss and gain of the fact. This is own property of author. For careful thinking, more and more data can be collected/stored during research period for more maturity of the project/work/thesis/articles.

27) Those practices are not applied never be included in the Methodology-then questions and/or challenges may come.
28) Materials/analysis techniques taken from other sources should come only with proper references.
29) Scientific methodology and/or techniques are changeable because of the advancement where old/past techniques carry wide success (must put with references).
30) With procedure one should be careful about using/writing on new technique, old/published or past techniques or revished technique then there would be no question on success story.
31) Challenging story can only be faced/applied only with proper publications and no other options.
32) Methodology can also include figures, tables, data in relation to research investigation.
33) Results and discussion are the part and parcel of the research where the originality of author/s have to be reported. Some papers/journals requires Result and Discussion as 2-separate chapters covering Results with data of Tables, figures and supporting results and discussion with critical analysis and Interpretation of the tables, figures with proper references/supporting materials.
34) For showing data/results and figures under significant level or success and failure of the results there must be always statistical analysis where minimum coverage require t-test, standard deviation, linear regression, design of expts (field expt.) etc. are important.
35) Results and Discussion requires proper interpretations of the data where best result and poor result should be compared with necessary supporting of the statements.
36) All result/data and interpretations require necessary supporting references and the more the closer the review works the more better the acceptance but not the repeatation of the past work.
37) Here in the Result and discussion most of the data particularly best fitted ones should be discussed with languages even they are in Tables and/or figures.
38) Same data showing both tables and figures not good-one is enough either in Table or in figures.
39) Data in Table or Fig. must be cleaned and 100% understandable.
40) Data not visible in Table and/or Fig. then never go on approximate discussion, then quality of paper/research reduces showing the weakness of authors/articles and even may be treated as corruption case.
41) Never place any data, table, figure etc. from other sources without references. Even one can omit the part in case of showing or failure of producing references.
42) Remember-results and interpretations must come under proper statistical analysis data where result/data maturity comes for conclusions.
43) References can come under various ways, numbers, authors with years, books authors, journal authors covering one, two or more than two authors. References under review or in introduction and finally have to show under reference chapters.
44) Usually, authors should follow the style of the journal or thesis before writing the references and for books-they follow differently, where style should be maintained otherwise paper will be rejected.
45) For all cases Introduction, reviews, methodology, results and discussion, references, summary and conclusions or recommendations and conclusion etc. should be written/rewritten according to the style of the respective journal and this should be taken as first priority of an article (Fig. 4).
46) Some articles require keywords, where 2-5/6 major words are listed after the Abstract.
47) Any helps taken can be acknowledged for his/her or their take part or involvement in the contributions.
48) Two schematic models/Fig. 2-3 well established for proper dealing/managing of research work and to become successful researcher in the career of life and Fig. 4 schematically well explained how to write a strong article for publication in the journal.

4. Universal criteria/guideline for birth, youth and growth of knowledge based successful researcher (Basic outlines) for producing best articles in scientific journals

Here an excellent knowledge based universal scientific criteria or guideline is established for successful building (birth, youth and growth) of a Researcher in any area of sciences, technology, agriculture, or other areas for today and tomorrow (Fig. 2-3).

1) Read life styles and research activities of some renowned scientists, researchers and philosophers.
2) Must have strong desires and interest on research and writing of scientific research articles/papers.
3) Develop mental strength to work as or build as research career.
4) Result of previous/past career good or poor that's not the factor for the growth of a successful researcher.
5) Read more and more research materials, journal, articles (national/international), thesis of masters and PhD programmes, reports.
6) Self involvement in research-field, lab., survey, basic, applied and/or fundamental research.
7) More and more critical thinkings on research activities-starting to end.
8) Talk with supervisor, professors, researchers etc. for proper handling of research and writing of articles for journals.
9) Publish articles in different journals (national/international) where comments of reviewers never treat as negative value rather enjoy as positive for building strong future career.
10) Try to develop some research projects (write 3-4 times) for handling of research as career goal.
11) Try to follow the chapters of a research article-Introduction, methodology (materials and methods), results and discussion and references for proper design of tables and figures with sound interpretations of results supporting with references showing of success (discovery) or failure of discovery/goal.
12) Try to establish new idea/concept on invention (if any) from the article but not showing the repeating of author. works/discovery.
13) During writing an article, try to write at least 3-times, the more the better (Fig. 4).
14) Before writing collect related references and those would largely help to build the maturity of article.
15) Build/grow self confidence or results and discoveries for the contribution, and prepare yourself for answering of comments supporting of the articles.
16) Deal with minimum changes of the research areas so that significant contributions can be achieved sometimes in life.
17) Take minimum involvement (usually one theory lecture in a week for Professor) in Theory courses but more involvement may degrade research career.
18) Never say/express research secrecy/findings to others before publications, then others easily can publish your article as his/her contributions.
19) Never involve in national and/or international politics, those may damage research career.
20) You handle research with own interest and never reject the choice.
21) Never desires for big positions like VC, Head of organizations, or Minister of govt. as those largely damages the career.
22) Avoid publishing articles in poor quality journals with money.
23) Remember-both are important for research-number of articles and quality of papers/articles.
24) Data with proper statistics help sound interpretation of results.

25) Even one can write books in the relevant field/area that enriches the writing and publishing capacity of authors.
26) Never add data, figure, and tables from other sources without references that are major crime for the authors.
27) Never think/add CLO-PLO games and philosophy in research and interpretations of research findings those damages the career.
28) For research with others, try to follow the major issue of the matter otherwise false statement/data may ruin the contribution.
29) Starting of research from beginning of journey is good and hopeful but at the old ages rarely can contribute as a great/renowned research.
30) Research says-a tree is known by its fruit i.e. you grow/plant a tree at the starting of research career and finally there would be good fruit as true success in life (Fig. 2-3).

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