

Academic writing in the broader context of early career researcher development: leveraging existing open educational resources with STEMskiller, an annotated guide from the National Library of Technology in Prague

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**EATAW
2021**

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11th Conference of the European Association for the Teaching of Academic Writing



Excited to be here

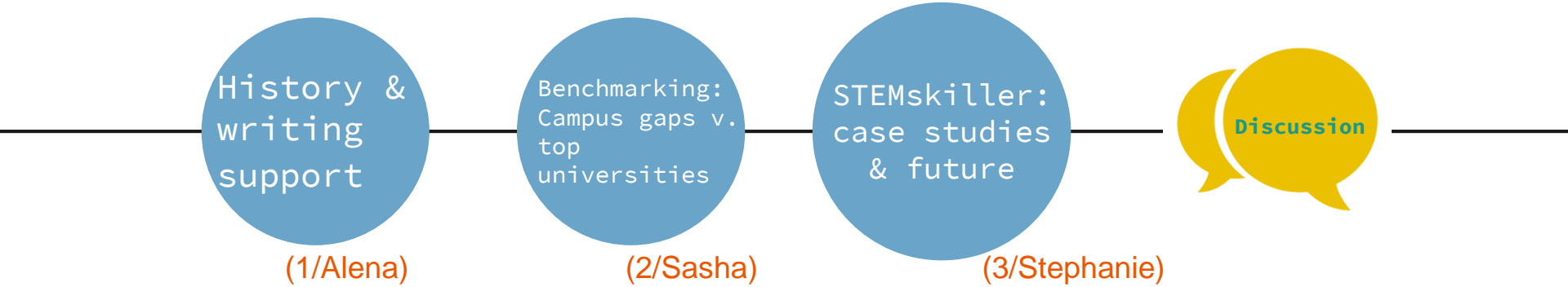
Alena,
Stephanie,
Sasha

3 information
professionals & the story
of STEMskiller





Today



History &
writing
support

(1/Alena)

Benchmarking:
Campus gaps v.
top
universities

(2/Sasha)

STEMskiller:
case studies
& future

(3/Stephanie)

Discussion

1/History & who we serve



EUROPEAN UNION
European Structural and Investment Funds
Operational Programme Research,
Development and Education



MINISTRY OF EDUCATION,
YOUTH AND SPORTS

NTK Academic Services

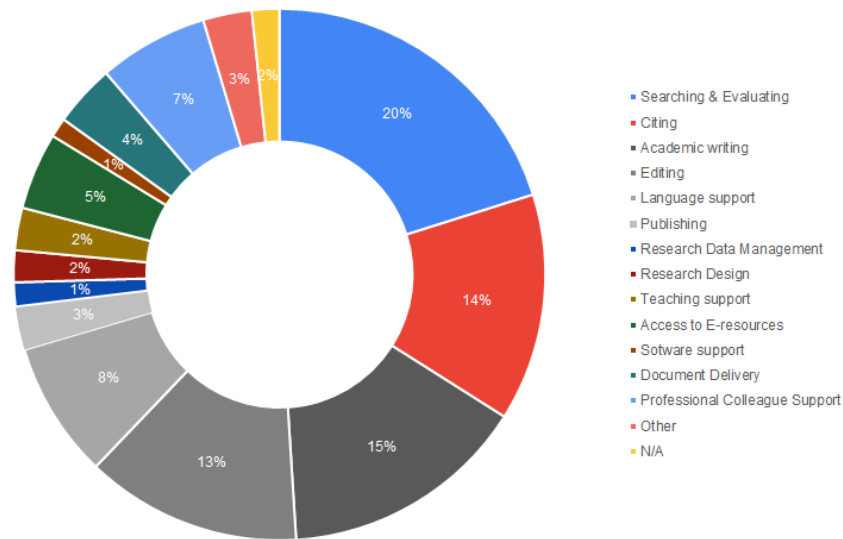
2013-present: Meeting students, researchers, and instructors at the point of need, in-person and online (even before COVID)

New: National Centre for Information Support of Research, Development, and Innovation

2021-2024: Our project stream=towards a “one-stop-shop” for researchers, early career researcher support

Many of our support efforts
are related to writing
(right: NTK CRM data)

NTK Consultations, January 1, 2017 - June 28, 2021



Akademická klubovna Alexandria /
Alexandria Academic Lounge

**2/2019-2020: Benchmarking
requests from the University of
Chemistry and Technology,
Prague, and Czech Technical
University in Prague**



Benchmarking

UCT Prague university communications (more international web presence, what others do)

CTU in Prague Faculty (School) of Civil Engineering, Department of Mechanics, Open Mechanics Research Group (EU HR Excellence Award, “defining mentorship” stream)

20+1 universities, highly-ranked technology/engineering schools and departments

Comparative analysis

UCT Prague	CTU in Prague
<p>a) Mission and portfolio in general</p> <p>b) International students and faculty engagement</p> <p>c) Study programs</p> <p>d) Research profiles</p> <p><i>*orange=involves writing competencies, directly or indirectly</i></p>	<p>a) Excellence in research and scholarship support (scientific writing, presenting and publishing, research literacy, research management, finding grant opportunities, research groups administration)</p> <p>b) Teaching and learning advancement (classes, mentoring programs, consultations, peer support)</p> <p>c) HR, international staff recruitment, and career development support (international staff, staff mobility, internships and exchanges, job interviews and applications, tenure process, advancements)</p> <p>d) Support for engagement, involvement, collaboration, transdisciplinarity, and inquisitiveness (curricular and extracurricular, institutional and external, formal and informal activities)</p>

As a result, STEMskiller was born

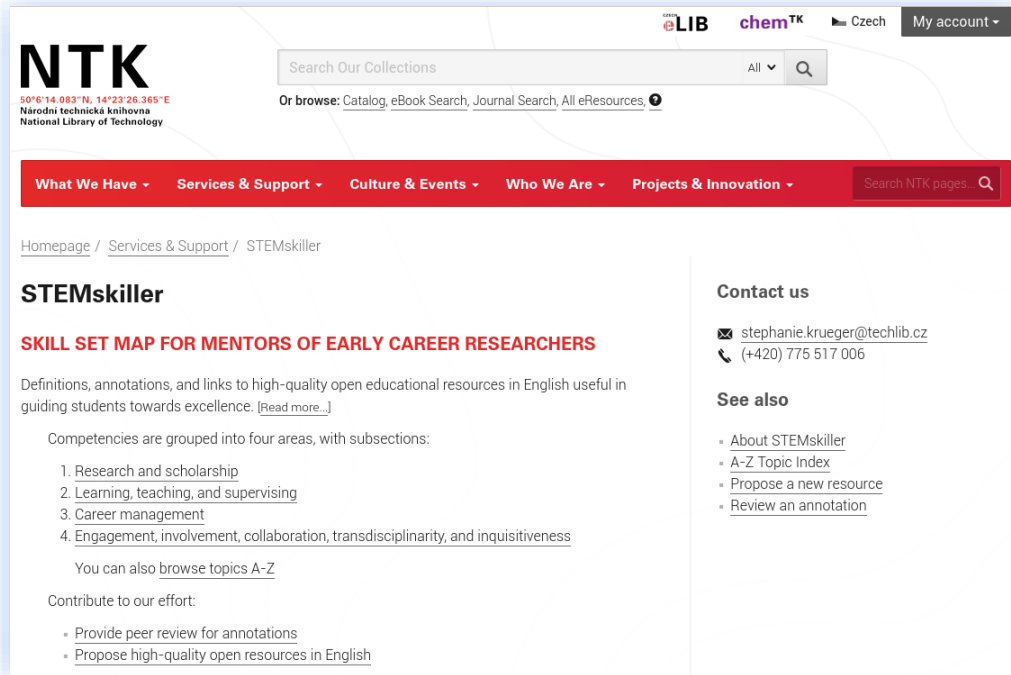
Not just writing, not just “traditional” information literacy skills, but a **comprehensive research and scholarship skill map**

For **mentors of early career researchers** (and interested self-study students)

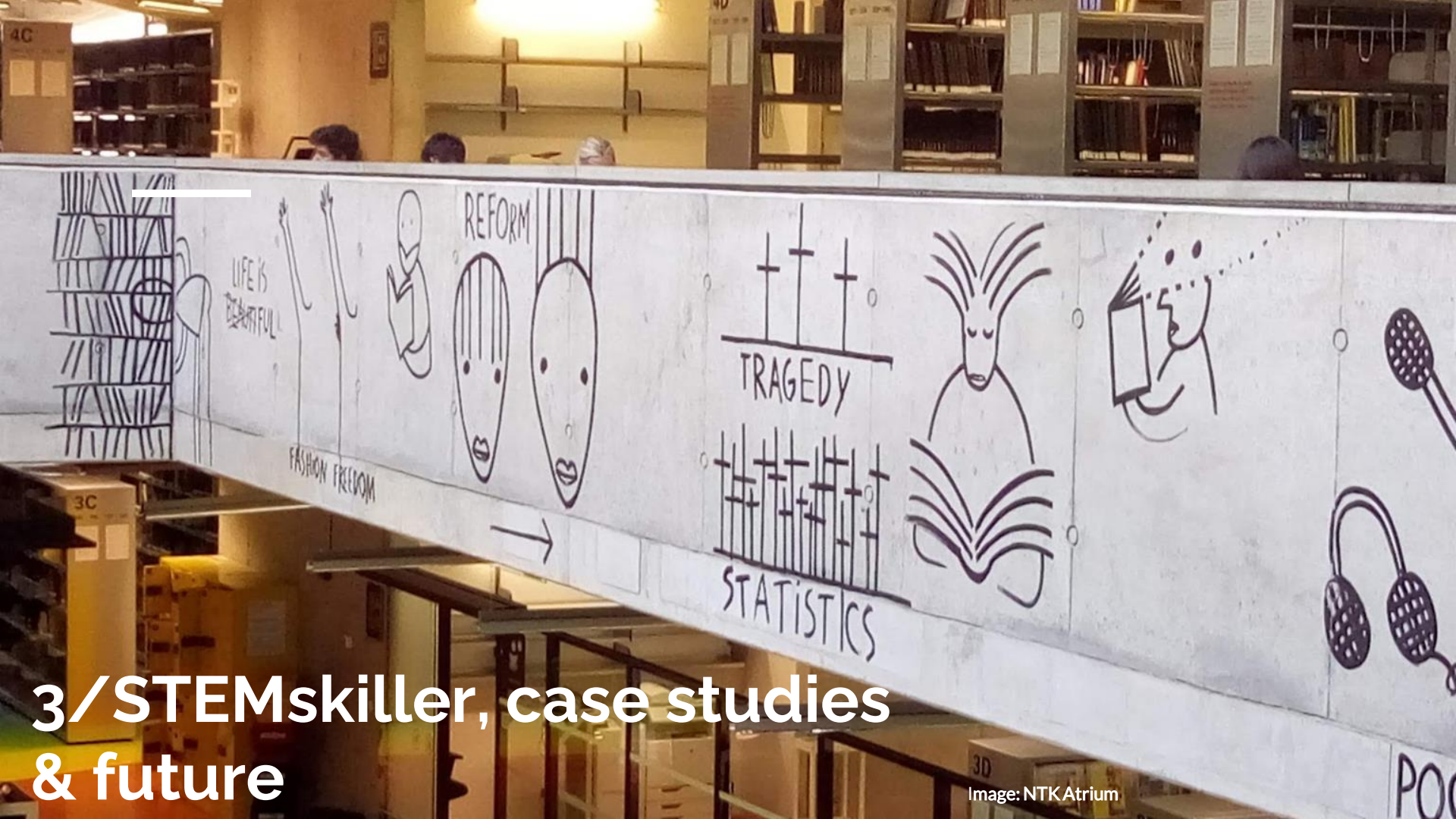
Specific aim: **Level the playing field** for any interested parties (worldwide)

Leverage existing open educational resources, not reinvent the wheel at the institutional level (a broad view **across** institutional and disciplinary boundaries)

Ideally, **collaborative effort** (peer review of annotations, suggestions for high-quality resources)



<https://www.techlib.cz/en/84109-stemskiller>



3/STEMskiller, case studies & future

STEMskiller at present

Simple map for mentors with little time and bandwidth

Original annotations with links to original sources

Not traditional “research life cycle” view, but based on real-world tasks and activities that make sense to anyone

Broader goals: “**demystify**” the academic process and **inspire** universities without full support services to expand their offerings through good examples

The screenshot shows the NTK (National Technical Library) website. The header includes the NTK logo with coordinates (50°6'14.083"N, 14°23'26.365"E) and the text "Národní technická knihovna National Library of Technology". There is a search bar "Search Our Collections" and a "My account" link. A red navigation bar contains links: "What We Have", "Services & Support", "Culture & Events", "Who We Are", and "Projects & Innovation". Below the navigation bar, the breadcrumb trail reads: "Homepage / Services & Support / STEMskiller / LEARNING, TEACHING, AND SUPERVISING / Basics for early career researchers / Learning outcomes and lesson plans". The main heading is "STEMskiller: Skill Set Map for Mentors of Early Career Researchers". The content area is titled "LEARNING, TEACHING, AND SUPERVISING: Basics for early career researchers" and includes a link "[Teaching and learning theories, styles, and methods]". The section "Learning outcomes & lesson plans: concepts and definitions, resources for learning more" contains a "Definition:" section with text about graduate assistants and a "Useful resources on Learning outcomes & lesson plans:" section with links to MIT Teaching+Learning Lab and Singapore Management University Centre for Teaching Excellence. A "Contact us" section on the right lists an email address and a phone number. A "See also" section lists links to "About STEMskiller", "A-Z Topic Index", "Propose a new resource", and "Review an annotation".

NTK
50°6'14.083"N, 14°23'26.365"E
Národní technická knihovna
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What We Have Services & Support Culture & Events Who We Are Projects & Innovation

Search NTK pages

Homepage / Services & Support / STEMskiller / LEARNING, TEACHING, AND SUPERVISING / Basics for early career researchers / Learning outcomes and lesson plans

STEMskiller: Skill Set Map for Mentors of Early Career Researchers

LEARNING, TEACHING, AND SUPERVISING: Basics for early career researchers

[Teaching and learning theories, styles, and methods]

Learning outcomes & lesson plans: concepts and definitions, resources for learning more

Definition:

While some graduate assistants may not teach, they may (in the future) manage research groups, teams, or be mentors to others and need to develop materials which assist their mentees in understanding what they are learning (in context; so-called “learning outcomes”) and milestones which must be achieved (lesson plans). Being familiar with the concepts of learning outcomes and lesson plans is essential for any mentees intending to have a career in academia.

Useful resources on Learning outcomes & lesson plans:

MIT Teaching+Learning Lab. (n.d.). (a.) *Intended learning outcomes*. <https://tll.mit.edu/help/intended-learning-outcomes>, (b.) *Expectations, course goals, and learning outcomes*. <https://tll.mit.edu/help/expectations-course-goals-and-learning-outcomes>

Definitions and examples of learning outcomes and other course planning guidance.

Singapore Management University Centre for Teaching Excellence. (2020). *Lesson planning*. <https://cte.smu.edu.sg/approach-teaching/integrated-design/lesson-planning>

Contact us

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☎ (+420) 775 517 006

See also

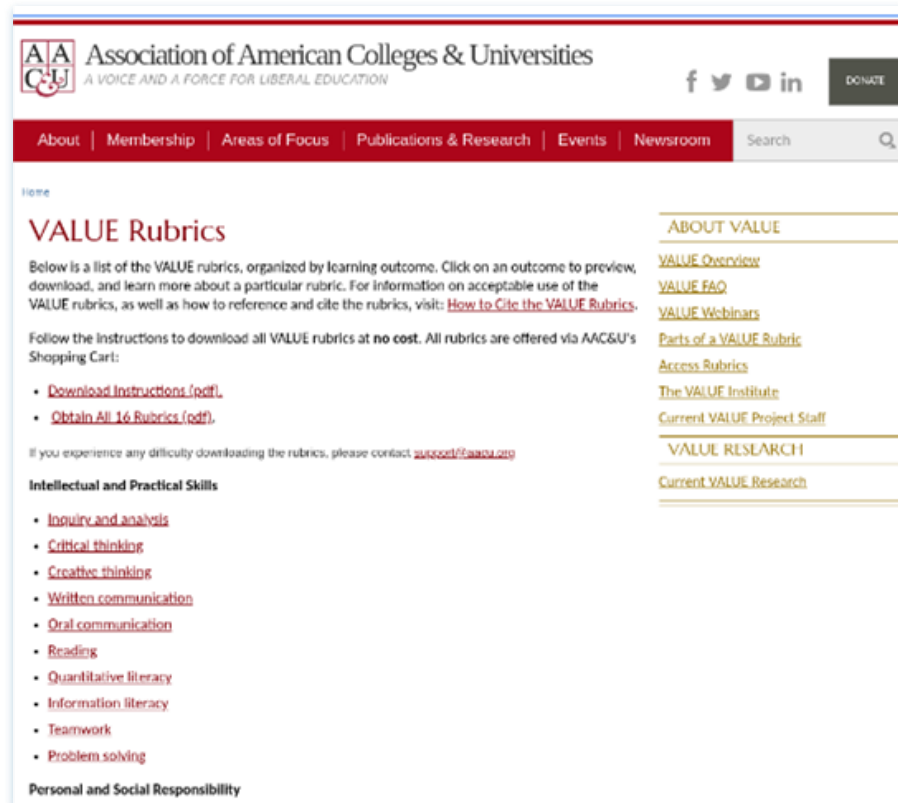
- [About STEMskiller](#)
- [A-Z Topic Index](#)
- [Propose a new resource](#)
- [Review an annotation](#)

Pathway for administrators

Highlighting array of services provided by top universities

Examples which could be implemented locally

Starting point for **consideration of accreditation integration** (Association of American Colleges & Universities VALUE Rubrics, <https://www.aacu.org/value-rubrics>)



The screenshot displays the AAC&U website's 'VALUE Rubrics' page. The header features the AAC&U logo, the organization's name, and the tagline 'A VOICE AND A FORCE FOR LIBERAL EDUCATION'. Social media icons for Facebook, Twitter, YouTube, and LinkedIn are present, along with a 'DONATE' button. A navigation bar includes links for 'About', 'Membership', 'Areas of Focus', 'Publications & Research', 'Events', and 'Newsroom', followed by a search bar. The main content area is titled 'VALUE Rubrics' and includes a paragraph explaining the purpose of the rubrics and a link to 'How to Cite the VALUE Rubrics'. Below this, it states that all rubrics are available at no cost and provides two links: 'Download Instructions (.pdf)' and 'Obtain All 16 Rubrics (.pdf)'. A contact email 'support@aacu.org' is provided for download issues. A list of rubric categories is shown, including 'Intellectual and Practical Skills' (with sub-items like Inquiry and analysis, Critical thinking, Creative thinking, Written communication, Oral communication, Reading, Quantitative literacy, Information literacy, Teamwork, and Problem solving) and 'Personal and Social Responsibility'. A right-hand sidebar titled 'ABOUT VALUE' contains links for 'VALUE Overview', 'VALUE FAQ', 'VALUE Webinars', 'Parts of a VALUE Rubric', 'Access Rubrics', 'The VALUE Institute', and 'Current VALUE Project Staff'. Below this, a 'VALUE RESEARCH' section includes a link for 'Current VALUE Research'.

Association of American Colleges & Universities
A VOICE AND A FORCE FOR LIBERAL EDUCATION

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Home

VALUE Rubrics

Below is a list of the VALUE rubrics, organized by learning outcome. Click on an outcome to preview, download, and learn more about a particular rubric. For information on acceptable use of the VALUE rubrics, as well as how to reference and cite the rubrics, visit: [How to Cite the VALUE Rubrics](#).

Follow the instructions to download all VALUE rubrics at **no cost**. All rubrics are offered via AAC&U's Shopping Cart:

- [Download Instructions \(.pdf\)](#)
- [Obtain All 16 Rubrics \(.pdf\)](#)

If you experience any difficulty downloading the rubrics, please contact: support@aacu.org

Intellectual and Practical Skills

- [Inquiry and analysis](#)
- [Critical thinking](#)
- [Creative thinking](#)
- [Written communication](#)
- [Oral communication](#)
- [Reading](#)
- [Quantitative literacy](#)
- [Information literacy](#)
- [Teamwork](#)
- [Problem solving](#)

Personal and Social Responsibility

ABOUT VALUE

- [VALUE Overview](#)
- [VALUE FAQ](#)
- [VALUE Webinars](#)
- [Parts of a VALUE Rubric](#)
- [Access Rubrics](#)
- [The VALUE Institute](#)
- [Current VALUE Project Staff](#)

VALUE RESEARCH

- [Current VALUE Research](#)



Case Studies

1/International postdoc candidate applying to research group

- Terrible cover letter but apparently good scientific skills
- PI sent relevant STEMskiller link and asked candidate to re-work the letter based on the example
- Unfortunately, letter was not revised and candidate was not hired (but PI felt like they'd given the candidate a chance)

2/Doctoral student organizing themselves for dissertation writing

- Student has good mentor who no time during COVID for consultations (even remote consultations); student working from a distance in another country after completing local coursework
- Noted as useful:
 - Defining writing schedule and environment
 - Organization, generally (e.g., to-do list)
 - Using other dissertations as examples for content and structure
 - Writing styles to engage readers



STEMskiller in the future

More discipline-specific resources in STEM recommended by mentors themselves

More peer review of annotations (i.e., building of collaborative network of interested parties)

More suggested high-quality, openly-available, non-commercial resources

Analysis of how VALUE competencies can be mapped to local accreditation realities and analysis of outdated organizational structures for possible improvement

1.5. Designing research projects (research methods)

- [1.5.1. Understanding elements of research design](#)
- [1.5.2. Quantitative methods](#)
- [1.5.3. Qualitative methods](#)

1.6. Research data

- [1.6.1. Data gathering and organizing](#)
 - [1.6.1.1. Data management](#)
 - [1.6.1.2. Open data management: history of open data initiatives, why important, current trends & guidelines](#)
- [1.6.2. Working with data \(modeling, simulation, analysis\)](#)
 - [1.6.2.1. Data analysis: concepts and definitions, resources for learning more](#)
 - [1.6.2.2. Advanced techniques in modelling complex systems](#)
 - [1.6.2.3. Information processing and exchange](#)
 - [1.6.2.4. Using R for statistical data analysis](#)
 - [1.6.2.5. Programming/coding basics](#)
 - [1.6.2.6. Software usage and development](#)
 - [1.6.2.7. Sensitive data](#)
- [1.6.3. Presenting data](#)
 - [1.6.3.1. Information presentation and visualization](#)
 - [1.6.3.2. Making graphics & plots](#)
- [1.6.4. Storing data](#)
 - [1.6.4.1. Open archives](#)

1.7. Discipline-specific competencies and skills

- [1.7.1. Mathematical literacy](#)

1.8. Ethics

- [1.8.1. Academic ethics and integrity: concepts and definitions](#)

1.9. Perspectives on "open" movements (beyond open publishing and open data)

- [1.9.1. Open Education: history, definition, current trends, examples](#)
- [1.9.2. Open Evaluation: definition, why important, current trends, examples](#)
- [1.9.3. Open Licensing: definition, why important, current trends, examples](#)
- [1.9.4. Open Methodology: history, definition, importance](#)
- [1.9.5. Open Source: history, definition, current trends, examples](#)



Discussion



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Please visit STEMskiller, share broadly, and help us build our network and list of resources. We welcome your input.

<https://www.techlib.cz/en/84109-stemskiller>