**QUESTIONNAIRE**

**COMPETENCE TO APPLY ICT IN EDUCATIONAL SCIENCE RESEARCH**

**OF TEACHERS STUDENTS**

**(For teachers students)**

*Dear students!*

The competence to apply ICT in educational science research of teachers students is one of the most important competencies in the current digital age.

In order to properly identify and develop this competence, please give your opinion on the following contents by selecting/tick the appropriate boxes or writing more comments in the blanks. (....).

The survey results are only for the purpose of scientific research and to suggest more closely useful advice and comments for schools and legislators on the issue of developing IT application capacity in educational science research. for pedagogical students of universities in Vietnam.

Sincerely thank you!

A. THE COMPETENCE TO APPLY ICT IN EDUCATIONAL SCIENCE RESEARCH OF TEACHERS STUDENTS

Please evaluate your own ICT application levels in the research of education science with the following specific indicators. For each indicator, rate your own usability on the following levels:

1. Very badly 2. Not well 3. Average 4. Well 5. Very well

| **Code** | **Indicators** | ➀ | ➁ | ➂ | ➃ | ➄ |
| --- | --- | --- | --- | --- | --- | --- |
| **DT** | **1. ICT application capacity in collecting research materials** |  | | | | |
| ***DT1*** | ***1.1. Using scientific databases to learn about the intended research problem*** |  | | | | |
| DT11 | Exploiting electronic libraries of training and research institutions |  |  |  |  |  |
| DT12 | Using domestic scientific databases to learn about the intended research problem |  |  |  |  |  |
| DT13 | Use databases appropriate to the research direction to learn about the intended research problem |  |  |  |  |  |
| ***DT2*** | ***1.2. Use scholarly literature search tools to search for research papers.*** |  | | | | |
| DT21 | Use common search engines such as Google, Bing... to search for documents |  |  |  |  |  |
| DT22 | Use basic search features of academic search engines such as Google Scholar, Microsoft Academic, Crossref, ERIC... |  |  |  |  |  |
| DT23 | Use appropriate search operators of scholarly literature search engines. |  |  |  |  |  |
| DT24 | Use the advanced search features of the scholarly literature search engine. |  |  |  |  |  |
| ***DT3*** | ***1.3. Evaluation of the quality of scientific papers published in international scientific journals*** |  | | | | |
| DT31 | Check whether the international articles are on the list of prestigious international scientific journals (ISI/Scopus) or not |  |  |  |  |  |
| DT32 | Use the right tool to indicate the ranking, impact index of international scientific journals. |  |  |  |  |  |
| DT33 | Point out the citation indexes of scientific documents in international scientific journals. |  |  |  |  |  |
| ***DT4*** | ***1.4. Use ICT tools to organize and store collected documents.*** |  | | | | |
| DT41 | Organize research data sets into appropriate folders on personal computers. |  |  |  |  |  |
| DT42 | Organize documents into suitable folders on cloud storage services (Google Drive, Dropbox, OneDrive ...) |  |  |  |  |  |
| DT43 | The dataset is updated regularly |  |  |  |  |  |
| ***DT5*** | ***1.5. Using open educational resources for educational science research*** |  | | | | |
| DT51 | Using Vietnam open educational resources such as open scientific journals, open scientific databases, etc. |  |  |  |  |  |
| DT52 | Using foreign open educational resources |  |  |  |  |  |
| DT53 | Assess the quality of open educational resources |  |  |  |  |  |
| ***DT6*** | ***1.6. Harnessing academic social networks to identify intended research problems*** |  | | | | |
| DT61 | Use links to academic social networks (ResearchGate, Academia, Google Scholar…) through document search results. |  |  |  |  |  |
| DT62 | Sign up to receive and use reference suggestions from academic social networks |  |  |  |  |  |
| DT63 | Contact authors of scientific publications via academic social networks to request manuscripts of papers. |  |  |  |  |  |
| ***DT7*** | ***1.7. Using artificial intelligence tools in document synthesis*** |  | | | | |
| DT71 | Using artificial intelligence tools (Iris.ai, Docear, ...) to synthesize research content by topic. |  |  |  |  |  |
| DT72 | Using artificial intelligence tools to filter out documents that match the research content to review the documents. |  |  |  |  |  |
| DT73 | Utilize the literature suggestions of research-supporting artificial intelligence tools into specific studies. |  |  |  |  |  |
| **DC** | **2. ICT application capacity in data collection in education science research** |  | | | | |
| ***DC1*** | ***2.1. Using online survey tools in questionnaire design*** |  | | | | |
| DC11 | Use online survey tools (Google Forms, Limesurvey, SurveyMonkey, KoBoToolbox...) to design simple questionnaires |  |  |  |  |  |
| DC12 | Use advanced functions of online survey tools (customize interface, design branching questions...) to design questionnaires |  |  |  |  |  |
| DC13 | Selecting online survey tools suitable to the requirements of each specific research |  |  |  |  |  |
| ***DC2*** | ***2.2. Use online survey tools to collect data.*** |  | | | | |
| DC21 | Can send survey of online survey tools via link, email to collect data. |  |  |  |  |  |
| DC22 | Download survey results to your computer for analysis |  |  |  |  |  |
| DC23 | Use the analysis of online survey tools |  |  |  |  |  |
| **DA** | **3. ICT application capacity in data analysis in education science research** |  | | | | |
| ***DA1*** | ***3.1. Use qualitative data analysis software*** |  | | | | |
| DA11 | Use the tools of spreadsheet software (Microsoft Excel, Google Sheet…) to analyze qualitative data. |  |  |  |  |  |
| DA12 | Using qualitative data analysis software such as NVivo, ATLAS.ti, Provalis, MAXQDA... to encode qualitative data, perform data queries. |  |  |  |  |  |
| DA13 | Use qualitative data analysis software to analyze data and produce reports suitable for research purposes. |  |  |  |  |  |
| ***DA2*** | ***3.2. Use quantitative data analysis software*** |  | | | | |
| DA21 | Able to use the tools of spreadsheet software (Microsoft Excel, Google Sheet...) to perform descriptive statistical analysis. |  |  |  |  |  |
| DA22 | Use professional software to analyze quantitative data such as SPSS, STATA, R, SAS... descriptive statistics analysis, value interval estimation, correlation analysis, regression. |  |  |  |  |  |
| DA23 | Using quantitative data analysis software to analyze factors EFA, CFA, SEM. |  |  |  |  |  |
| **WR** | **4. The ability to apply ICT in writing reports on educational science research results** |  | | | | |
| ***WR1*** | ***4.1. Use word processor to write reports*** |  | | | | |
| WR11 | Use basic features of word processor (Microsoft Word, Google Docs) to write reports. |  |  |  |  |  |
| WR12 | Use word processor to create proper reports on scientific document format. |  |  |  |  |  |
| WR13 | Use advanced features of word processor (track change, style), mail merge, macro programming, etc. |  |  |  |  |  |
| ***WR2*** | ***4.2. Use citation management software in report writing.*** |  | | | | |
| WR21 | Use a text editor to manually cite references |  |  |  |  |  |
| WR22 | Use the document citation feature available on editing tools such as Microsoft Word, Google Docs |  |  |  |  |  |
| WR23 | Can use citation management software (Mendeley, EndNote, Zotero...) to insert citations into documents. |  |  |  |  |  |
| ***WR3*** | ***4.3. Use data visualization tools*** |  | | | | |
| WR31 | Use popular software (Microsoft Excel, Google Sheet…) to create simple charts. |  |  |  |  |  |
| WR32 | Use popular software (Microsoft Excel, Google Sheet…) to create complex charts |  |  |  |  |  |
| WR33 | Use professional data visualization tools (Microsoft Power BI, Tableau, Google Analytics, R...) to create complex charts. |  |  |  |  |  |
| ***WR4*** | ***4.4. Using the paraphrasing tool*** |  | | | | |
| WR41 | Know how to use tools to help rephrase the text (Paraphrasing-tool, Paraphraser…) to rewrite sentences |  |  |  |  |  |
| WR42 | Use tools to support re-phrased text in writing reports to avoid duplication when quoting documents |  |  |  |  |  |
| WR43 | Flexible use of tools to support text re-expression in report writing |  |  |  |  |  |
| ***WR5*** | ***4.5. Use plagiarism detection tools.*** |  | | | | |
| WR51 | Use plagiarism detection tools (Plagium, Plagiarism Detector…) to check the level of duplication of a piece of text. |  |  |  |  |  |
| WR52 | Use the plagiarism detection tool to check the duplication of the full text of the research report |  |  |  |  |  |
| WR53 | Set the appropriate parameters for the level of duplication in the plagiarism detection tools when checking. |  |  |  |  |  |
| **PU** | **5. The ability to apply ICT in the publication of scientific research results** |  | | | | |
| ***PU1*** | ***5.1. Use presentation software to present research results*** |  | | | | |
| PU11 | Create presentations using popular presentation software (PowerPoint, Google Presentation ...) |  |  |  |  |  |
| PU12 | Use basic features of presentation software in presentations |  |  |  |  |  |
| PU13 | Use advanced features of presentation software in presentations |  |  |  |  |  |
| ***PU2*** | ***5.2. Using ICT tools in increasing the visibility of research results*** |  | | | | |
| PU21 | Use social networks (Facebook, Twitter, Zalo…) to communicate about your research results |  |  |  |  |  |
| PU22 | Post your research results on academic social networks (ResearchGate, Academia, Google Scholar...) |  |  |  |  |  |
| PU23 | Promote your research results on the right tools |  |  |  |  |  |
| ***PU3*** | **5.3. Using the researcher's identifier** |  | | | | |
| PU31 | Use at least one common researcher identifier such as ORCID, ScopusID, WoS ResearcherID… to publish personal scientific information. |  |  |  |  |  |
| PU31 | Used identifier in scientific publications |  |  |  |  |  |
| PU33 | Update individual scientific publications on identifiers |  |  |  |  |  |
| CO | **6. The ability to use ICT in collaborative research** |  | | | | |
| ***CO1*** | ***6.1. Collaborate with team members*** |  | | | | |
| CO11 | Use communication channels such as email, Zalo group, Facebook messenger... to work in groups. |  |  |  |  |  |
| CO12 | Create shared drives on cloud storage services (Google Driver, Dropbox…) to store the research team's documents. |  |  |  |  |  |
| CO13 | Join/host online meetings via Zoom, Google Meet, Microsoft Team... for teamwork |  |  |  |  |  |
| ***CO2*** | ***6.2. Cooperation with national and international scientists*** |  | | | | |
| CO21 | Join associations/groups on scientific research and education on social networks |  |  |  |  |  |
| CO22 | Use academic social networks as a reference channel to update new research directions. |  |  |  |  |  |
| CO23 | Contact researchers to request documents through communication channels such as: Email, social networks... |  |  |  |  |  |
| ***CO3*** | ***6.3. Use collaborative writing tools for teamwork*** |  | | | | |
| CO31 | Use an online authoring tool (Google Docs, Microsoft 365…) to share the document's link to other members of the research team. |  |  |  |  |  |
| CO32 | Use online editing software (Google Docs, Draft, Pensoft Writing Tool…) for group work. |  |  |  |  |  |
| CO33 | Use advanced features of online word processor for teamwork |  |  |  |  |  |

B. FACTORS AFFECTING THE COMPETENCE TO APPLY ICT IN EDUCATIONAL SCIENCE RESEARCH

Please evaluate some factors about the environment and learning conditions at the place you are studying; capacity and self-perception about the application of information technology in educational science research. For each factor, please indicate your level of agreement with the following levels:

*1. Strongly disagree. 2. Disagree 3. Neither agree nor disagree 4. Agree. 5. Strongly agree*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | ➀ | ➁ | ➂ | ➃ | ➄ |
| B1 | **Your assessment of the environment, learning conditions, and scientific research at the university you are attending** |  | | | | |
| B1.1 | The school has a policy to encourage students to use ICT in research |  |  |  |  |  |
| B1.2 | The school has funds to support the use of ICT in research |  |  |  |  |  |
| B1.3 | The school's ICT infrastructure can support students' scientific research activities |  |  |  |  |  |
| B1.4 | The curriculum has modules on using ICT in learning and research |  |  |  |  |  |
| B1.5 | You see that future teachers need skills in scientific research in general and skills in ICT in research in particular. |  |  |  |  |  |
| B2 | **Your assessment of the influence of people around you on the application of ICT in educational science research** |  | | | | |
| B2.1 | The teacher has oriented you to use ICT tools in scientific research activities. |  |  |  |  |  |
| B2.2 | Teachers are very enthusiastic to help you in using ICT tools in scientific research activities. |  |  |  |  |  |
| B2.3 | You are encouraged and encouraged by your family, friends, teachers... in using ICT tools in scientific research activities. |  |  |  |  |  |
| B2.4 | You are supported, helped and shared by group members and friends in the use of ICT tools in scientific research activities. |  |  |  |  |  |
| B2.5 | You can participate in activities of student clubs of scientific research, pedagogical staff, these clubs help you improve your skills in using ICT in scientific research activities. |  |  |  |  |  |
| **B3** | **Your assessment of your ability, self-perception** |  | | | | |
| B3.1 | You can use foreign languages to read and understand documents and instructions on software and websites. |  |  |  |  |  |
| B3.2 | You can self-study, self-study on a certain topic. |  |  |  |  |  |
| B3.3 | You see that the use of ICT in scientific research has a very important role and meaning. |  |  |  |  |  |
| B3.4 | You like and often learn and use software and websites to apply them in work and study. |  |  |  |  |  |
| **B4** | **Your assessment of your own conditions for the use of ICT in research** |  | | | | |
| B4.1 | You have a lot of time to focus on scientific research |  |  |  |  |  |
| B4.2 | Your major at the university helps you to apply ICT in scientific research |  |  |  |  |  |
| B4.3 | Your future work will need to use ICT in research activities |  |  |  |  |  |

C. PERSONAL INFORMATION

Please tell us something about yourself:

**1. Your gender:** 1. Male 2. Female

**2. What year are you a student?** 2 🞏 3 🞏 4 🞏 Other 🞏

**3. What major are you a student?**

1. Mathematics Pedagogy

2. Physics Pedagogy

3. Chemistry Pedagogy

4. Biology Pedagogy

5. Informatics Pedagogy

6. Literature Pedagogy

7. History Pedagogy

8. Geography Pedagogy

9. Early Childhood Education

10. Primary education

11. Language pedagogy

12. Others

**4. What university are you a student at?**

1. Dong Thap University

2. VNU University of Education - Vietnam National University

3. University of Science and Education - University of Danang

4. Thai Nguyen University of Education - Thai Nguyen University

5. Ho Chi Minh City University of Education

6. Vinh University

**5. Have you completed one of the modules “Scientific Research Methodology”, “Educational Scientific Research Methodology”, “Scientific Research Methodology” yet?**

1. Unfinished

2. Completed

99. My university's curriculum doesn't have these modules

**6. Cumulative average score of one of your modules “Scientific Research Methodology”, “Educational Scientific Research Methodology”, “Scientific Research Methodology”?**

……………

**7. Your cumulative GPA (up to now):**……………..

**8. What is the highest achievement in your scientific research?**

1. Won the ministerial-level scientific research student award

2. Won the university-level scientific research student award

3. Won the faculty-level scientific research student award

4. Did not win any of the above awards

99. Alternatives

**9. How many times have you participated in scientific research?**

9.1. Essay writing at the end of the course: 0 1-2 3-5 more

9.2. Carry out research projects for students: 0 1-2 3-5 more

9.3. Reports at scientific research seminars: 0 1-2 3-5 more

9.4. Participating in scientific research projects: 0 1-2 3-5 more

10. Are you working on your graduation thesis? No Yes

**11. Self-assessment of English or other foreign language proficiency**

1. Very bad 2. Not good 3. Average 4. Good 5. Very good

**12. Self-assessment of ICT usability**

1. Very bad 2. Not good 3. Average 4. Good 5. Very good

*Thank you very much for your help!*