What behind numbers?

A Snapshot of Scientific Research Production at Al-Quds University

Presented by Elham Kateeb, Dean of Scientific Research
The mission of Al-Quds University is to lead high-quality research that provides solutions to important problems in the Palestinian society, contributes to the Palestinian economy and adds to the global knowledge.
Objectives:

This presentation will discuss how successful was AQU in achieving its mission in using research to serve the community.
Methods

Data from Scopus database about AQU scientific research production – scientific articles - over the period of 2010-2018 will be accessed and analyzed to assess the main areas and types of research conducted at AQU.
Expected Outcomes

To identify the indicators used in the literature to measure the societal impact for research

To discuss what indicators available at AQU to measure societal impact of our research:
- Research quantity
- Research quality
- Research themes

To discuss what data we need to collect to measure other indicators identified to assess the societal impact of AQU research
How research impacts society?

From the literature!
Impact and effects of Academic Research

• Researchers are usually encouraged to consider how their work is connected with wider issues, extending beyond academia.

• It is important to ensure that both policy-makers and the general public are aware of the effects and impact of research and the potential it carries.

• Effective science advocacy requires comprehensive data on where and how the knowledge and skills generated in research can be put to good use.
Roles of Research in Society:

Scientific research is expected to contribute to society, for example, in the following issues:

- Human understanding and world view
- Wealth and prosperity
- Basis for decision-making
- Practice development
Impact and effects of Academic Research

A study done by the Academy of Finland, to evaluate contributions of research to society in four research fields:

- Medical engineering and health technologies
- Materials science and technology
- Ecology and evolutionary biology
- History

came up with some important impacts that research need to influence in the society:
Important impacts that research need to influence in the society

- Impact on health and wellbeing
- Impact on public institutions and services
- Impact on the economy and economic renewal
- Impact on the environment and natural resources
- Impact on human capacities and culture
Impact on health and wellbeing

- Reduced morbidity or illness; improved physical or mental health
- Reduction of social problems; improved social welfare
- Improvement of healthcare
- Management or prevention of health-related risks
Impact on public institutions and services

- Preparation of policy-making, legislation or other regulations
- Renewal of teaching curricula, educational planning
- Improvements related to other public services (e.g. public security, transportation, social services)
- Improved function of public institutions
Impact on the economy and economic renewal

• Improved business capability or competitiveness of individual companies
• Improved prospects for employment or expert work
• New business activity; attraction of investments
• Development or renewal of the economic environment; adaptive capacity of the economy
Impact on the environment and natural resources

• Reduction of environmental stress; improved state of the environment
• Sustainable use of natural resources; protection of biodiversity
• Sustainability of the built environment, infrastructures or land use
• Management or prevention of environmental risks; improved ecological resilience
Impact on human capacities and culture

• Strengthening civilization, citizen participation or civil activity
• Protection of cultural diversity; improved cultural interaction or coexistence
• Development of environments supporting creativity, experimentation and learning
• Development of national or international community
Main routes to impact:

- Transfer of research results
- Cooperation and interaction
- Proficient people
How to measure the societal impact of Academic Research?

Do we have such measures here at AQU?
Indicators to measure the societal impact of research

Content analysis:
- Professional publications
- Treatment guidelines and protocols
- Policy documents
- Cochrane library
- Textbooks
- Teaching materials
- Lay publications

Indicators to measure the societal impact of research

Software
• Citation analysis
• Scientific publications cited in documents lin the previous slide

Products
• Healthcare technologies and services
• Instruments, program, methods for assessment or implementation of care
Indicators to measure the societal impact of research

**Publicity**
- Presentations for a non-scientific audience
- Fact sheets
- Public media
- Internet Memberships
- Member of a committee issuing a policy document or a treatment guideline
- Member of advisory committee

**Teaching**
- Contributions to education (learning based on research)
However, those indicators are rarely used and more number-based (publications analysis) indicators are usually used to assess the merit of research impact.
Top World University Ranking Systems use research as the main ranking indicator and sometimes the only one.

Stated purpose and use of world top ranking system:

- Research Performance: CWUR, Leiden, SCIMago, Times, RUR, Shanghai, URAP, UMR, Webometrics
- Research Quality: Times, CA, UMR, U
- Research Innovation and Economic Impact CA


https://doi.org/10.1371/journal.pone.0193762
MoHE Proposed Criteria for Ranking

• Number of publications in Scopus per full-time faculty over the past 5 years
• Number of citations in Scopus per full-time faculty over the past 5 years
• Number of collaborated research articles over the past 5 years
• Number of patents registered locally and internationally
What measures do we have here at AQU?

• No data available to use in measuring the societal impact of AQU research except data on AQU publications (as an indicators)

• In this presentation, we will use Scopus as a credible database to collect info about AQU publications

• Why Scopus? Used by QS, MoHE, Credible and prestigious
What is Scopus?

- Scopus is the largest abstract and citation database of peer-reviewed literature: scientific journals, books and conference proceedings.
- Delivering a comprehensive overview of the world's research output in the fields of science, technology, medicine, social sciences, and arts and humanities.
- Scopus features smart tools to track, analyze and visualize research.
- Scopus offers free features to non-subscribed users, and is available through Scopus Preview.

https://www.elsevier.com/solutions/scopus
Al-Quds University Publications Analysis Using Scopus Database
Scopus Documents Analysis 2010-2019

- 1294 documents
- 306 open access, others 988
- Number of authors: 539
- 1047 articles
- 76 conference papers
- 59 reviews
- 48 Book chapter
- 14 editorial
Publications Numbers Source: Scopus
Most Published Authors

Documents by author
Compare the document counts for up to 15 authors

- Abdeen, Z.
- Karaman, R.
- Fanun, M.
- Deeb, O.
- Nasereddin, A.
- Azmi, K.
- Ereqat, S.
- Sovwan, M.
- Abu-Lafi, S.
- Al-Rimawi, F.

Documents
Documents by type

Types of Publications

- Article (80.9%)
- Review (4.6%)
- Conference Paper... (5.9%)
- Book (1.0%)
- Editorial (1.1%)
- Book Chapter (3.8%)
- Letter (0.8%)
- Erratum (0.7%)
- Article in Press... (0.5%)
- Note (0.5%)
- Other (0.2%)
<table>
<thead>
<tr>
<th>UNIVERSITY OR INSTITUTION</th>
<th>NUMBER OF PUBLICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>An-Najah University</td>
<td>50</td>
</tr>
<tr>
<td>Birzeit University</td>
<td>46</td>
</tr>
<tr>
<td>University degli studi della Basilcata</td>
<td>46</td>
</tr>
<tr>
<td>Jordan University JUST</td>
<td>32</td>
</tr>
<tr>
<td>Charite Berlin</td>
<td>27</td>
</tr>
<tr>
<td>Arab American University</td>
<td>25</td>
</tr>
<tr>
<td>KU Leuven</td>
<td>23</td>
</tr>
<tr>
<td>Lunds Universitet</td>
<td>22</td>
</tr>
<tr>
<td>Rutgers University-Newark Campus</td>
<td>19</td>
</tr>
<tr>
<td>The University of Jordan</td>
<td>12</td>
</tr>
<tr>
<td>University of Manchester</td>
<td>11</td>
</tr>
<tr>
<td>Al-Quds Open University</td>
<td>8</td>
</tr>
</tbody>
</table>
Patents: more direct measure of impact?

- 5 Patents found in Scopus
- From 2010-2016
- 3 registered in United States Patent & Trademark Office
- 1 registered in European Patent Office
- 1 registered in World Intellectual Property Organization
- All of these patents are for the same research group and AQU is not the leading organization
- At least there is another one registered at the Palestinian Commerce Ministry
# MoHE Indicators

<table>
<thead>
<tr>
<th>Indicator</th>
<th>AQU numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of articles resulted from international collaboration in 2017</td>
<td>93</td>
</tr>
<tr>
<td>Number of citations for the top 10 researchers in Google Scholar</td>
<td>18,535</td>
</tr>
<tr>
<td>Number of citations for the top 10 researchers in social sciences in Google Scholar</td>
<td>1,430</td>
</tr>
<tr>
<td>Number of articles published in (not indexed in Scopus) journals during 2017</td>
<td>71</td>
</tr>
<tr>
<td>Number of researchers who have H-index less than 3 according to Google Scholar</td>
<td>34</td>
</tr>
</tbody>
</table>
An example: 2018 Publications Scopus Analysis
2018 in Scopus

- 108 publications:
  - 80 articles
  - 11 conference proceedings
  - 6 in press
  - 8 reviews
  - 2 Notes
  - 31 articles had their first author from Al-Quds University
<table>
<thead>
<tr>
<th>Field</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicine</td>
<td>52</td>
</tr>
<tr>
<td>Biochemistry, Genetics and Molecular Biology</td>
<td>21</td>
</tr>
<tr>
<td>Pharmacology, Toxicology and Pharmaceutics</td>
<td>13</td>
</tr>
<tr>
<td>Computer Science</td>
<td>11</td>
</tr>
<tr>
<td>Engineering</td>
<td>11</td>
</tr>
<tr>
<td>Physics and Astronomy</td>
<td>11</td>
</tr>
<tr>
<td>Chemistry</td>
<td>10</td>
</tr>
<tr>
<td>Environmental Science</td>
<td>8</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>8</td>
</tr>
<tr>
<td>Arts and Humanities</td>
<td>7</td>
</tr>
<tr>
<td>Nursing</td>
<td>7</td>
</tr>
<tr>
<td>Health Professions</td>
<td>6</td>
</tr>
<tr>
<td>Agricultural and Biological Sciences</td>
<td>5</td>
</tr>
<tr>
<td>Immunology and Microbiology</td>
<td>5</td>
</tr>
<tr>
<td>Chemical Engineering</td>
<td>4</td>
</tr>
<tr>
<td>Energy</td>
<td>4</td>
</tr>
<tr>
<td>Neuroscience</td>
<td>4</td>
</tr>
<tr>
<td>Psychology</td>
<td>4</td>
</tr>
<tr>
<td>Dentistry</td>
<td>2</td>
</tr>
<tr>
<td>Materials Science</td>
<td>2</td>
</tr>
<tr>
<td>Earth and Planetary Sciences</td>
<td>1</td>
</tr>
<tr>
<td>Multidisciplinary</td>
<td>1</td>
</tr>
<tr>
<td>Veterinary</td>
<td>1</td>
</tr>
</tbody>
</table>
What a big limitation of numbers extracted from Scopus?

Limited data available on Research Production in Arabic and in Humanities!
## Publications in Arabic 2015-2018 from SR annual reports (25 papers)

<table>
<thead>
<tr>
<th>Category</th>
<th>Quantity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of articles published in Palestinian Universities journals</td>
<td>3</td>
<td>12%</td>
</tr>
<tr>
<td>Number of publications published in non-universities Palestinian Journals</td>
<td>4</td>
<td>16%</td>
</tr>
<tr>
<td>Number of publications published in Arab Universities Journals</td>
<td>10</td>
<td>40%</td>
</tr>
<tr>
<td>Number of publications published Arab non-universities journals</td>
<td>6</td>
<td>24%</td>
</tr>
<tr>
<td>Other (Conference papers)</td>
<td>2</td>
<td>8%</td>
</tr>
</tbody>
</table>
How we are doing compared to others?

<table>
<thead>
<tr>
<th>Variables</th>
<th>Al-Quds University</th>
<th>An-Najah National University</th>
<th>Birzeit University</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Documents</td>
<td>1295</td>
<td>1694</td>
<td>1407</td>
</tr>
<tr>
<td>Hi index</td>
<td>52</td>
<td>46</td>
<td>67</td>
</tr>
<tr>
<td>Total citations</td>
<td>17610</td>
<td>14356</td>
<td>32800</td>
</tr>
<tr>
<td>Google Scholar participation</td>
<td>133</td>
<td>401</td>
<td>141</td>
</tr>
<tr>
<td>The citations of the top 10 researchers in Google Scholar after omitting the highest one</td>
<td>13,906</td>
<td>30,680</td>
<td>44,974</td>
</tr>
</tbody>
</table>
How we are doing compared to others?

Al-Quds University

Birzeit University

An-Najah National University
Conclusions!

- Quality indexed publishing
- Open access publishing
- Avoid fake or predatory publishers
- Link all your research efforts to Palestinian community challenges and problems when formulating research questions
- Focus on research that strengthens the AQU capacity for research and involve students
- Develop indicators to measure the impact of research on the local community or collect data using tools such as “DSpace” to use already validated indicators of societal impact of research.
- Document all AQU research in the Digital Repository and link them to researchers’ profiles on the AQU website, research clusters and AQU news University website
- Researchers’ visibility is important for the researcher, the institution and for Palestine
Thank you