Creating Individual Journal Rankings based on a Community Approach

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Abstract

Selecting appropriate publication outlets is crucial to any researcher. Journal rankings can be used to guide the selection, but their usefulness may be limited for particular audiences. In this paper, it is argued that especially young researchers and researchers in interdisciplinary fields can benefit from targeting research efforts to a specific community. This can be facilitated by an individually built journal ranking that exploits a community building perspective and by a more transparent process of use. The approach introduced here is based on an analysis of both traditional journal rankings and behavior of academic communities. As a result, we present a procedure for building and using an individual journal ranking, its tentative composition and the ranking calculation. In addition, we suggest measures for evaluating the ranking use. The results presented in this paper are focused on but not limited to young researchers and emerging disciplines.

1. Introduction

In academia, journal rankings are a recognized tool to guide researchers’ publication selection. Most important researchers publish in the most important journals. But how is the importance of a journal defined? In this paper, it is argued that not only traditional journal rankings and their impact factors matter, but also the people who are gathered around the journal: the editorial board, the authors and the readers.

Over the past decades, scholars of the IS and related disciplines have had a debate regarding journal rankings, impact, citation indexes and peer-review processes and methods [1-6]. It seems as there are several equally valid or problematic methods in creating rankings and measuring impact.

However, not much if at all emphasis on this debate has been given to how young researchers perceive journal rankings, which stance is taken on these matters in PhD seminars, and how young researchers select their publication outlets. We believe it depends strongly of the individual viewpoint of the established academics in each university on how these matters are being taught and instructions given and thus, what kind of a tradition will prevail. Consequently, the established academics may guide young researchers to select publication outlets they prefer rather than suggesting ones beneficial to the young researchers academic work and career.

Therefore, we raised the question whether the available IS and computing journal rankings [1, 2, 7-9] serve young researchers well enough. We suggest that attempting to publish based on existing rankings only may not advance the reputation of young researchers among the particular academic community or group they wish to address. Intuitively, given the burden in publishing in high-ranked journals, the more motivating approach to young researchers could be to make themselves known in the particular field of study and among the people that have the strongest impact on one’s academic career in its early steps.

The aim of this paper is to present a procedure on how to build and use an individual journal ranking based on a community approach and on one’s current research aims. Since the targeted group of people is inherently more focused, this paper also presents a different viewpoint to measuring the impact of publishing, i.e. the impact among the targeted people. We also discuss the motivation for such a procedure by comparing it to the given journal rankings, where the reputation of the journals is stressed, although we feel both the community building aspect and journal reputation are important. The motivation and procedure arises from the problems and findings in composing individual journal rankings (“community weighted index”, CI) supporting our current state and aims in research careers. We therefore describe our work process to raise thoughts and give fellow young researchers suggestions on where to start rather than a normative specification or guideline. We believe our findings are also of value to the established academics considering guidance that they will be giving to their students and fellow researchers. Also, we consider our approach to be useful for any
researcher studying a new or interdisciplinary topic and those who find it difficult to select publication mediums as rankings for their fields do not exist.

2. Journal rankings

The seminal work on journal rankings by Garfield [10] introduced computer-compiled statistics on citation frequency as a way to measure the impact of journals and, thus, rank them according to the impact factor. Journal ranking therefore refers to the evaluation of journals' impact, reflecting the importance and quality of a journal. Today, a journal ranking also refers more broadly to a list of top journals constructed using citations and other statistics on journal impact factors, survey and analysis of perception data or by aggregating earlier ranking studies [1, 11].

A number of IS journal rankings have been created over the past decades. Peffers and Ya [8] and Lowry et al. [1] introduce a total of 21 studies ranking IS journals from 1980 to 2004. The introduced rankings have been made according to contribution, importance of journal for publication, familiarity, frequency and preference of use for acquiring and disseminating information, quality and influence. In the studies, both citation analysis and expert opinion surveys have been used as measures. Rainer and Miller [2] compare existing journal rankings and calculate an average score from the previous studies to conclude that MIS Quarterly, Communications of the ACM, Information Systems Research, Management Science, and Journal of Management Information Systems are the top five journals of the IS discipline.

While the ranking studies themselves tend to focus on how a ranking is created rather than why it is created, it is generally recognized that the placement in a ranking is an indication of quality and influence of the journal [7, 12]. Furthermore, publishing in a highly ranked journal has an impact on perceived quality and influence of the research [6] and further on reputation, tenure, promotion, and salary decisions of the researcher [12]. Reputation of the institutions is similarly affected by their publication record [6] and this is why some scholars strongly emphasize publication in prestigious journals.

Since the reputation of both a researcher and organization they represent in the academic world often pertain on publication records and high-ranking journals enjoy such incremental advantage, why would a researcher, be they young or established, submit to journals with lower ranking? The answer to the question depends on the attitudes of individuals, groups of researchers and institutions towards the value and usefulness of the rankings. Van Fleet et al. [13] have considered the benefits and use of rankings and suggest that rankings can be utilized in establishing publication targets and evaluating the research output. While it would be interesting to study which proportion of researcher in the IS discipline uses rankings as guidelines in selection of publication mediums, we believe that young researchers and researchers studying interdisciplinary topics may not find most current journal rankings useful in this regard. This notion also receives support from recent publications [14, 15]. We suggest that also an individual point of view and particularly from academic career building perspective in creating journal rankings is needed.

Thus, in this paper it is argued that rankings built individually, for personal use and based on personal objectives, can better serve young researchers in the beginning of their academic careers and also researcher on niche research fields where appropriate, established rankings not yet exist. Following the taxonomy of rankings by Bollen et al. [4], the key difference between traditional journal rankings and ranking created for personal use is that the latter is created by the author, not by the readers. The need and aim of establishing such an individual, personally weighted journal ranking can be justified particularly with the concepts of academic communities of practice and social networks.

3. Academic communities of practice and social networks

The term communities of practice was first coined in Lave and Wenger's [16] study, which observed learning in the apprenticeship model, where work and practice in the community enabled the newcomer to move from peripheral to full participant of the community. The key three elements of a community of practice are domain of knowledge, community of people working on the domain and a shared practice that the community develops [17]. The closely related term social network is defined as a group of people who have connections to some or all other actors in this network - in academia this usually means co-authorship and citation networks [18]. Especially in the case of co-authorship a social network can be considered as an academic community of practice. While communities of practice are traditionally considered as localized social networks, Internet technologies allow and enable geographical distance between co-authors and research groups without much loss of efficiency. The various forms of Internet technologies, such as blogs,
wikis, discussion forums and social networking sites, are also ways to create communities of practice and social networks. However, the difference between these concepts is that a community of practice contains not only connections but practice in the domain, in our case the field of IS academics.

The research community forms a social network that provides an alternative view to the journal impact. The logic of social networks having an effect to journal impact follows the logic of evaluating the impact of web sites based on their connections to other pages rather than based on the actual content of the page [4]. In other words, the journal impact is not only dependent on the actual papers that are published, but on the measure of how well it is connected to other papers. And since papers do not connect but their authors do, the social network viewpoint seems to be relevant in evaluating the journal impact.

Research concerning both academia and other contexts has indicated that social networks in general have only few central and influential people [18]. Consequently, these individuals have a control over the information flow between the others and, for an individual researcher, a collaboration with few other researchers can easily establish access to a very large part of the collaboration network. Hence in practice, presuming that the researcher is connected with the correct people, the academic discoveries, theories and other research results need not to travel very far in order to reach those who can benefit of them [18].

However, the connections with adequate people are not created automatically but a researcher must take initiative in order to create them. One form how these connections can be composed is by clusters of articles that are analyzed with a citation analysis [19]. Further, as the number of a scholar’s research contacts has been found to be the strongest predictor of their publication efficiency [20], these clusters can be interpreted to represent the communication networks of the authors and further their importance in the research community. Since the more important scientists in a field obtain large grants, invite others to share research projects, serve as editors of leading journals and referee grant proposals and journal manuscripts [20], acknowledging them when planning a publishing strategy could be advisable for a young researcher.

It also seems logical for a young researcher that publishing in a high-ranked journal will increase the likelihood of getting employed and receiving grants. Targeting people instead of journals on the other hand, receives support from the idea of the academic communities of practice. In our case, a community of practice can be considered as a group of people working on a certain focused topic, who increase their knowledge and expertise on the topic by interacting and this way become informally bound [17]. As a resource, a community of practice can also be seen as a contribution to status attainment beyond one’s own personal resources. Intuitively, such a resource is more easily accessible by addressing a narrower than a broader audience. But in order to have access to and use such a resource, a researcher should first have an impact among the targeted people. The impact can be achieved by focusing publishing activities into journals that are likely to be read among the people forming the focused community, which in turn is accomplished through ranking the journals weighting the personal perception and the targeted group of people.

Is focusing advisable then? Some might think that focusing on a certain niche community would be like making undesired compromises. However, focusing one’s publication efforts can be seen analogous to a corporate way of thinking, where a small company with limited resources, who cannot run for the Fortune 500 companies list, may focus their operations in order to gain the best performance and profit. Similarly, a young researcher with limited resources may focus one’s research activities.

This approach is supported also by the research of Katerattanakul's et al. [7]. Their study based on average ranking scores, reveals a finding that, on average, journals with a technical or a specialty focus attain high rankings among IS journals. This indicates that those publications are frequently used and cited by other researchers, whose interests are in the journals’ niche areas. This finding supports the benefits of focusing on ones specialty community for greater impact than publishing in journals receiving recognition by general audiences.

Additionally, it is difficult to measuring the actual impact the young researcher has achieved in the targeted community. Whereas traditional journal rankings incorporate the presumed impact, we argue that the gained total impact of targeting the selected social network or community of practice cannot be measured directly and only through citations. Thus it should be noted that when creating and exploiting an individual journal ranking, one should bear in mind that the specific personal objectives are met.

Given that the personal objectives of researchers are to advance knowledge, receive recognition of the hard work and advance their career, both selecting high-ranked journals from the ranking studies and focusing on a niche community seem to be ways to achieve these objectives. Nevertheless, starting to select publication outlets from targeting people instead of impact factors can be beneficial for young
researchers or groups with focus area and researchers or groups with interdisciplinary topics. The practical reasons for this include the increased possibilities to select the people to have impact on one's career and balancing one's personal capabilities and the target. This is beyond researchers' control when attempting to publish according to ranking studies.

In order to benefit from an individual journal ranking based on the community approach, the differing impact factor, steps of creating the ranking and measurement of success needs to be considered.

4. Creating and using individual journal rankings

An individual journal ranking is an ordered list of publication mediums to which an individual plans to submit research articles. The ranking is compiled based on existing rankings, personal preferences and personal objectives such as career advancement or building one's social network. We suggest that individual journal rankings should also include rationale for selecting and ordering the journals and a description on how success in publishing activities is measured. In particular, the process of publishing as well as creating and presenting evidence is modified (section 5). As described above, we regard social networks and academic communities of practice as central and beneficial instruments for a researcher. Thus, the premise for developing individual journal rankings is the community and related people that the researcher should address. The three steps of creating and using a individual journal ranking based on this community approach include definition of personal objectives and journal screening based on it, gathering and analysis of the candidate journals and finally the definition of community weight index and final ranking calculation. These steps are elaborated in more detail below.

1. Defining candidate journals through personal objectives

Following the community approach, developing an individual journal ranking is initiated by setting one’s personal objectives for the ranking use. Writing down the objectives in the form of actual names and possible benefits of having the contact enables a more concrete starting point for the later steps.

This simple exercise is not only crucial in the evaluation and selection of publication outlets but also it acts as basis for later impact measurement. The general objectives of a researcher are to publish results and be cited on the work. In our approach, we believe that citations from a specific target group or targeted people (e.g., people active in the same specialization topic) are the most valuable ones.

Further, collecting objectives helps to justify the focusing on certain journals. This justification is essential since individual rankings are not commonly provided, and thus they need to be contextualized in e.g. tenure negotiations or job applications.

The following task in creating an individual journal ranking then depends on the chosen objectives. If one ascribes importance to building connections to the key people of a network or people considered having influence on one's career (i.e. the social network viewpoint), the particular community and people to be addressed need to be selected and listed. In the case of building social networks, after listing the targeted people, one should search for the journals in which the selected people publish regularly or act in the editorial board. By publishing in these journals, a researcher attracts attention among the selected people.

If the most important aim is gaining access to a group of researchers focusing on a certain topic (i.e. communities of practice viewpoint), choosing and enumerating the particular topics of interest will help to grasp the targeted group. In case the communities of practice perspective is taken, one should find out the journals which concentrate on the selected topics and the key contributors to the topic, for the journal these people favor will also be read by the others interested in the topic. This leads to a list of candidate journals associated with the relevant people and topics.

2. Gathering and analyzing journal details

Selecting the potential publication outlets typically involves exploring policies, contributors and impact of candidate journals. Developing an individual journal ranking is no different in this regard. The elements of policy and impact of journals include aims and scope of the journal, preferred methodology, discipline, frequently appearing authors, composition of the editorial board, available information about the journal contents and reviewing process, availability in various indexes and the position in a recognized journal ranking.

As part of creating the ranking, these details are gathered and analyzed to facilitate the evaluation of the candidates and the practical preparation of articles one plans to publish. Gathering details can be done while searching candidate journals in step one described above. We suggest that the details can be gathered with the structure shown in Table 1 below, as it facilitates journal assessments and comparisons.
when it comes to the actual ranking and index weighting.

In addition to the journal name and its position in a recognized journal ranking, the details are arranged according to three factors: relevance factor, target group factor and other information that the researcher may find necessary. In the following, these factors and their elements are described and analyzed in more detail.

The journal's position in a recognized journal ranking represents an objective measure of journal prestige and appreciation in the research field. This reference ranking can vary from discipline to discipline, in the IS field for example the computer science/information systems journal ranking [21] is widely used. Though, it must be noted that not all journals, particularly in niche research fields, are included in traditional journal rankings.

The aims and scope of the journal further refine the target area of the journal's publishing policy and thus is an important factor when denoting whether to submit a manuscript to the journal or not. Preferred methodology as the next element enables the researcher to evaluate the technical suitability of one's research regarding to the journal targets. This is essential since many journals prefer certain research methodologies to others. In order to have ones manuscript accepted to a journal, the used research methodologies have a central role. The last element in the relevance factor group, discipline, refers to the particular research field where the researcher is concentrating one’s work. This is crucial especially for researchers who do multi-disciplinary research. The discipline is essential also for researchers in niche research fields, since their appreciation can vary significantly from field to field.

Considering the target group factor, frequently appearing authors is used to evaluate the audience and target group of the journal, since it is likely that the authors of a journal also read the journal regularly and thus they can be reached through it. Composition of the editorial board, together with the information on frequently appearing authors, allows the young researcher to assess the community, whether it includes the people interested in the researcher’s topic, people belonging to an academic communities of practice to be addressed, and whether it includes people the researcher considers having impact on one's career. The journal's availability in various indexes, gives an overview of how well the research results published in a particular journal could be spread in the target group and in the discipline in general. In case a journal is available in particular indexes, it is plausible that the audience of the articles is thus wider.

A researcher may also gather other practical and helpful information supporting the preparation of articles. Information available about the journal contents, publishing frequency and reviewing process varies greatly between journals, for only some publishers give detailed information e.g. about the journal aims and scope and describe their review process step by step. This creates a trusting and high-quality image of the journal and thus the information

<table>
<thead>
<tr>
<th>Journal name</th>
<th>Placement in the IS journal ranking</th>
<th>Aims and Scope</th>
<th>(Preferred) Methodology</th>
<th>Discipline</th>
<th>Frequently appearing authors</th>
<th>Editorial board</th>
<th>Availability in indexes</th>
<th>Other information</th>
<th>Community Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computers in Human Behavior</td>
<td>Impact Factor 2007: 1.344</td>
<td>The journal addresses both the use of computers in psychology, psychiatry and related disciplines.</td>
<td>A.A., B.B. (members of ABCD working group) and C.C.</td>
<td>X.X., Y.Y. and Z.Z.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Journal of Computer Assisted Learning</td>
<td>Impact Factor 2007: 0.8</td>
<td></td>
<td>B.B. and D.D.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interacting with Computers</td>
<td>Impact Factor 2007: 0.969</td>
<td>Topics include evaluation techniques, HCI tools, techniques and methodologies...</td>
<td>M.M. and N.N.</td>
<td>Sciedirect</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MIS Quarterly</td>
<td>Impact Factor 2007: 5.826</td>
<td>Quantitative, Positivist</td>
<td>IS</td>
<td>X.X. and Y.Y. (TAM research)!</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>European Journal of Information Systems</td>
<td>Impact Factor 2007: 0.712</td>
<td>European perspective... critical view on technology, development, implementation, strategy, management and policy...</td>
<td>Both theory creating and theory testing</td>
<td>IS</td>
<td>K.K and L.L. (consider for researcher exchange program!)</td>
<td>Indexed in multiple places</td>
<td>Good guidelines at: <a href="http://www.palgrave-journals.com/ejis/author_instructions.html">http://www.palgrave-journals.com/ejis/author_instructions.html</a></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 1 – Structure for gathering journal details
helps the young researcher to evaluate the quality of the journal that previously is unknown and the same goes also for journals in niche research areas where new journals might be emerging as the research field grows and gains interest.

In addition to describing the structure for gathering journal details, the Table 1 gives an example of appliance of the structure. In our example, a young researcher is choosing publication outlets for her research article on user acceptance of the E-Learning technologies. (The example shows work in progress and the real names are made anonymous for sensitivity and privacy reasons). E-Learning is a typical niche field between the disciplines of information systems and education. In some communities, the field of E-Learning is considered out of scope of certain IS journals and also for educational journals. This dilemma is typical for niche and new disciplines. The table exemplifies that the researcher has started collecting details of the suitable journal based on contributors of the topic as well as based on the people that may be useful contacts when applying for researcher exchange programs.

In our example, we use year’s 2007 impact factors for IS journals [21] and a specific targeted ranking for the niche area of E-Learning [22]. Making the decision on a publication outlet by impact factor and ranking alone, for example MIS Quarterly would be the obvious choice. However, our young researcher may prefer building specific social networks to addressing general audience. Consequently, and may consider the two factors, relevance factor and target factor, to balance the journal prestige and personal objectives.

The target group factor facilitates reflecting upon the value of the community of practice around the journal. Relevance factor in turn is composed of elements that assess the journal relevance in relation to ones own research topic. Based on the personal objectives and on how much value the individual places on these factors, we propose an additional element may be attached to the journal's details, community weight that has values between zero and one. The value of 1.00 indicates that the researcher highly appreciates the community around the journal and value close to 0.00 indicates that the community around the particular journal is not regarded as important.

The personal objectives listed in the first step of the procedure facilitate the assessment of community weight. Along with the details of the journals collected in step two, the personal objectives represent qualitative aspects of the journal selection. Operationalizing these aspects into community weight enables critical examination on the magnitude of differences the researcher perceives between two journals with relation to the personal objectives. As an example, the initial community weight can be calculated by bibliometric methods (e.g., relative number of articles on a specific topic like E-Learning in a particular journal; number of articles by main authors on a particular topic). However, this index would not include qualitative information such as methodology preferences). Therefore, the community weight index would be modified in a negotiation process with a supervisor or peers. In this process, the group should discuss the influence of the qualitative factors (e.g., objectives, journal details) on the community weight. The review can be conducted with the supervisor, faculty advisor or peers of the researcher. During the review, the researcher is obliged to provide justification for the assessment, for example on why the community or the people related to the Computers in Human Behavior is in researcher’s mind five times more valuable than similar aspects related to the MIS Quarterly. Alternatively, the review may be held after the final selection of journals, although then the focus on the review may turn from community aspect to the importance of the journal in general.

3. Defining the community-weighted index

The ranking studies in any discipline are grounded on systematic means to order journals. Also for our individual journal ranking, a systematic method is needed to avoid arbitrary decisions in a ranking premised solely on individual perceptions. In addition, the need for a formalized way of evaluating the journals emerges from the requirement of being able to compare the individual ranking against the rankings validated by the IS discipline. This is to say, a researcher must be able to rationally justify the selection to other people. This may occur for instance when the researcher is applying for a new position.

In order to avoid biased selection and to formalize the individual journal ranking, we suggest the positions of journals in one's ranking could be decided based on community-weighted index examination. This approach combines the journal's impact factor with the community weight comprising of the target group factor and the relevance factor. The weighted index would then be calculated for each journal with a function having a coefficient (community weight, see above) assigned to denote the importance of the people and topic. We believe such approach to beneficial by allowing weighting the different journals in an academic career development setting. Therefore, the community-
weighted index refers to contextualized measure for the importance of a journal.

The community-weighted index CI(i) is calculated taking into account the weight of a journal based on its community value. We base our calculation on two indexes I(n) denoting the base index (i.e. IS discipline index) of journals and T(m) denoting the topic related index of journals. We assume that I and T are linear, metric indexes, both in ascending order which can be normalized. The community-weighted index CI(i) calculates as follows:

\[ CI(i) = w(i) \times \left( \frac{I(i)}{I_{\text{max}}} + \frac{T(i)}{T_{\text{max}}} \right), \quad i = \{1..n+m\} \]

where n is the number of journals in the base index; m is the number of journals in the topic related index; w(i) is community weight for a journal; I_{\text{max}} is the maximum value of the base index; and T_{\text{max}} is the maximum value of the topic related index.

The use of the community-weighted index is illustrated with the example of a researcher considering submitting research article on user acceptance of the E-Learning technologies. Table 2 below presents how the community-weighted index is calculated and how an individual ranking based on this index is accomplished. The indexes for IS journals (i.e. base index) and a specific topic related index for the niche area of E-Learning, which were collected in the previous step, are first inserted to the table. Then, both indexes are normalized and community weights are assigned to each journal. After the calculation of the community-weighted index CI, the journals under consideration can be ranked.

The example depicted in table 2 shows a systematic means to evaluate journals selected based on personal objectives. The example also shows the effects of assigning community weights to the journals, but also the importance of generally acknowledged indexes. While the example researcher has put a major emphasis on the social networking benefits in one of the journals, the inclusion of existing measure and its relative importance guides our example researcher to rather select the topic related journals. The example also highlights the importance giving proper grounds to assigning the community weight for the journal. As the base indexes for some journals may be far greater than the ones being finally chosen, such decision needs to be rational and reasonable also in the eyes of the others. Therefore, we stress the significance of setting and documenting the personal objectives in the beginning of the procedure.

The final step of the procedure is to follow the objectives and individual ranking in submitting research articles to the selected journals.

### Table 2 – Calculating the community-weighted index

<table>
<thead>
<tr>
<th>Journal</th>
<th>Existing indexes</th>
<th>Index Normal</th>
<th>Community Weight</th>
<th>Weighted Index</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>MISQ</td>
<td>5.83</td>
<td>1.00</td>
<td>0.10</td>
<td>0.10</td>
<td>4</td>
</tr>
<tr>
<td>EJIS</td>
<td>0.71</td>
<td>0.12</td>
<td>1.00</td>
<td>0.12</td>
<td>3</td>
</tr>
<tr>
<td>CHB</td>
<td>1.34</td>
<td>1.00</td>
<td>0.50</td>
<td>0.50</td>
<td>1</td>
</tr>
<tr>
<td>JCAL</td>
<td>0.80</td>
<td>0.60</td>
<td>0.40</td>
<td>0.24</td>
<td>2</td>
</tr>
<tr>
<td>IC</td>
<td>0.97</td>
<td>0.72</td>
<td>0.10</td>
<td>0.07</td>
<td>5</td>
</tr>
</tbody>
</table>

### 5. Measuring impact in community approach

Using an individualized ranking also implies a different procedure of success measurement and documenting this, for example in for tenure negotiations or job assessments. The impact and the success of researchers is partly measured by their publications. This is typically done by the quality of their publications measured by different forms of citation analysis, such as citation indexes [23]. However, assessing and measuring individual impact and scientific quality is discussed controversially in a variety of disciplines [24]. The difficulty of and objective measurement is obvious [25-27], so that different solutions are proposed for problem areas such as co-authorships [28] and citation networks [29].

We propose an individual assessment, which combines the elements of our method and uses multiple documentation instruments. The following aspects should be provided by a researcher when assessed using our method:

1. **Citation analysis based on the community approach:** A citation analysis [19] is a clear study of the output of a researcher. Including the community approach means that a researcher should clearly point out the communities addressed. A citation analysis should therefore show how the main target groups have received the articles of a researcher, e.g., through a visualization method clearly showing the relationships in a community.

2. **Community and reputation analysis:** As a separate description, we recommend to analyze the influence on the community. This does not solely consist of a citation analysis but also on improved
cooperation activities in the targeted community: new cooperation projects, co-authorships, or further academic relations, such as program committee invitations.

3. Provision of portfolios [28] in combination with citation analysis: A pure indicator-based analysis of a researcher's output and productivity does not reflect the impact on a community. Therefore, additional materials should be provided. Besides the impact / citation analysis it is necessary to provide the individual ranking and a description of the addressed communities in order to clarify the publication strategy. A portfolio therefore contains a) the publications, b) a community description, c) the individual journal ranking, d) a citation analysis incorporating the community aspects.

Our approach combines different methods of research assessments such as citation analysis or portfolios. The approach shown advocates a holistic assessment of researchers, based on their output as well as involvement and success in targeted communities. Even though this approach requires more documentation and tailored assessment, it will lead to a fairer and more realistic assessment, in particular for young researchers and research fellows in interdisciplinary work.

6. Discussion

The presented approach suggests three main changes to existing practice in the scientific community: 1) Improving and individualizing the process of publishing, 2) incorporating social networking aspects and mechanisms in the process and 3) considering creation and usage of individualized rankings as a learning process for individuals or groups. In the following, we will discuss the proposed changes, potential benefits and limitations of the approach.

The central idea of our approach is the improvement of the phases in the process of publishing: in ranking and selecting journals as well as making publication strategies transparent. The introduced approach to create journals ranking and measure impact does not contradict the current practice based on impact factors, as the base indexes are included in assigning community-weighted index to a journal. Our individual journal ranking resembles rankings studies based on expert opinion. Here, the expert is the individual making the decision on publication mediums based on personal objectives. We therefore see our individual journal ranking approach extending the both types of rankings with a focus on the process of building and using those indexes.

The main question of the approach regards its acceptance in the community. Can such an approach change existing practice? Can we create and use evidence which is accepted widely, for example in tenure evaluations? We discuss this issue by illustrating differences and commonalities of the suggested approach to the existing practice. The central difference in the introduced approach compared to existing methods of compiling and utilizing rankings is in the overall process. The starting point of the current process is the already existing ranking created through a ranking study or through measurement of citation indexes. The individual researcher applies the existing ranking in his selection of publication mediums and later to create evidence records (publication list, impact analysis). When young researchers or research groups apply he individual journal ranking approach, they initiate the process by creating a new journal ranking, which is utilized in selection of publication outlets. The review of the journal appreciation with a supervisor or peers reduces the researcher's possibilities to make arbitrary selections. We suggest that the outcome of the of such negotiations will result in more elaborated ranking and, thus, more justified publication strategy. This learning effect is in particular helpful for young researchers.

Furthermore, the individual or group is responsible for gathering the evidence record, consisting of citation analysis based on the individual ranking as well as an analysis of interaction with the desired people and community and the impact of the interaction. We find the task and its outcome beneficial as it provides evidence for success in community building efforts, which would otherwise be hard to demonstrate.

As a second matter, community building and successfully creating and acting in social networks is central to our approach. Communities of practice have an identity defined by a shared domain of interest. In the context of this paper, we suggest communities of practice to provide linkage between journals and related social networks, both focused around certain domain captured in research articles published in journals. Publishing alone does not guarantee access to the desired communities, but the researchers are required to identify and target communities they wish to cultivate or enter. Our approach facilitates identifying people in such communities as well as selecting communities of practice.

The main limitation of our approach is that we cannot show empirical evidence on the effects of
applying in a large scale community. The approach suggests changes in both ranking creation and usage which is not changed in a short (evaluation) period. This raises a question on how to determine the results of applying our ranking approach: Would it create a better social network for the young researcher over time? The quality of the research publication is the determining factor on how researchers' input is appreciated and the approach shall not automatically produce desired impact on the community. However, the answer to the question depends on personal objectives and how the individual perceives reputation. In case the researcher intends to gain attention from selected people or a community, the reputation is measured not only through citations but also through attention of those people. Attention and reputation in social networks is built on and gained through mechanisms other than citation, like recommendations, short reviews of papers, debates or discussions. The suggested approach enables focusing available resources to the desired communities to produce intended results. The approach facilities reflect this balance.

Our approach can be used by a variety of groups but it focuses mainly on several contexts: The introduced approach is applicable for both individual researchers and research groups in building publication strategies. We stress the importance of reflecting the decision on publication mediums, while promoting inclusion of personal objectives to the selection. The suggested approach incorporates consideration of not only the rank or impact factor but also topical and methodical fit among other important details. Creating individual rankings should consequently be seen as learning process for a young researcher, researcher working on a interdisciplinary topic or a group. The researcher is required to think and study the potential audiences and candidate journals and consider justification of the journal selection as the selection shall be reviewed by supervisors, peers and promotion committees. The learning process is also incorporated to the measurement of impact in community, in analyzing whether the desired audience has been reached.

7. Conclusions

This paper has introduced a community based approach to building individual journal rankings. The approach is needed to facilitate selecting publication outlets, which can be laborious even for experienced researchers. The presented approach is relevant particularly for researchers who lack research experience and whose academic networks are limited. It is also useful for researchers working in emerging or interdisciplinary fields where new journals are established and rankings may not yet exist. As a result of this our considerations a concept of individual journal ranking, procedure of developing such ranking and systematic means to conduct evaluation of the journals through community-weighted index were defined.

In contrary to existing journal ranking studies, our ranking approach is based on individual preferences and needs. The individual ranking supports a researcher to focus one's research and to establish contacts in the academic communities. These contacts are proven to be beneficial in the academic life [20]. Hence for a young researcher, it pays off to take a community approach in creating an individual journal ranking and in selection of publication outlets. Taking this approach, instead of attempting to gain impact in a general unknown audience, the young researcher addresses the particular community interested in a specific topic. This set of mind has some important effects on how individual rankings are created and how impact is measured.

In this paper, the steps of building these rankings were identified. At first, the individual aims of the researcher are conceptualized and listed and an initial list of journals was gathered by identifying the central researchers around the research topic or the people otherwise important in relation to the individual objectives. Alternatively, the target community is identified and approached through scanning journals around a particular topic.

Second, the selected journals were analyzed in more detail according to a defined list of elements. The last step was to quantify the findings by weighting the proposed elements.

To operationalize parts of this procedure, a calculation of the community-based index was constituted. The calculation was comprised by grouping the elements into a community factor and relevance factor. Both factors were justified by a literature review on journal rankings, social networks and communities of practice. In addition to the weighted elements, the ranking included also additional information, which was needed to enable the individual perspective and personal aims of person making the ranking.

To measure the actual impact in the community, and thus to validate the usefulness of the individual ranking, three different measurements were suggested. Citation analysis, community and reputation analysis and a research portfolio were identified as the central means for measurement.
Our approach is just the first part of our research. The main question is how it affects the research community and how the process as well as the index is realized. The feasibility of the approach in our community needs to be assessed in a longer time frame. Additionally, the use of technology support is a promising research task – we intend to conduct experiments with social networking sites such as ResearchGate [30] to support the creation of individual ranking and to evaluate the output in certain communities.

7. References