Author Role in Online Submission and Peer Review Systems of Iranian Medical Journals

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ABSTRACT
Since the late 1990s, different web-based submission and peer review systems have emerged, and significant numbers of journals have shifted from their old paper-based systems to the web-based ones. Exploring the main features of these online systems might lead to better understand this flow. This study was performed to examine the features and capabilities of online submissions and peer review systems, with focus on the author role, which have been currently using by Iranian, approved medical and biomedical journals. This descriptive study was conducted during 2011-2012. The population of the study was peer review systems of approved medical and biomedical journals by Ministry of Health and Medical Education, Iran. In this term, 199 journals were identified. Data were gathered by a standardized, researcher made checklist. The data were analyzed using SPSS 18 and Microsoft Excel 2007. 27 out of 199 journals were using no systems. 21 out of 199 were using 12 systems with inaccessible information or unknown status (which were removed from this study), and 151 journals were using 6 systems which were examined in this study. Evaluated systems were more than 80% in compliance with the research checklist. Due to rapid changes in information technology and information systems’ designs, it is required for such systems to be constantly evaluated. It is of high value to investigate new demands of beneficiary groups like authors and researchers, editorial boards, and reviewers in this regard.

Keywords: Online Submission, Manuscript, Peer Review Systems, Journal Management Systems

INTRODUCTION
Online submission and peer review systems allow authors, and reviewers and editorial staff to manage the submission of articles, and the subsequent peer-review processes electronically in a web-based environment with all communication with the stakeholders taking place online [1]. These systems begun to emerge since the late 1990s, and significant numbers of journals, especially in science and biomedical sciences, have shifted from their old paper-based systems to the web-based ones [2]. Moreover, there has been an increase (20-40%) in the number of papers submitted electronically via those web-based submission and peer review systems in recent years [1]. There are a number of advantages from authors’ perspectives regarding using web-based submission and peer review systems including faster responses, shorter refereeing times, greater transparency and convenience [3]. As more authors and reviewers practice electronically in a web-
based environment, and get familiar with the benefits of online submissions, they will begin to expect of other paper-based journals to shift toward the web-based submission systems. Those journals resist against this technological shift will face challenges bringing them a distinct disadvantage however they might find it a challenging job to choose the right system to meet their editorial tasks [2]. An extensive international survey on online submission and peer review system was conducted for the Association of Learned and Professional Society Publishers (ALPSP) in early 2005 to address this issue. ALPSP sought to determine editors, authors, reviewers and publishers experiences and to establish the end users reactions and effects on journals [4]. Factors found to be influencing the easy use of the system have been explored by ALPSP. They have reported that providing planning before implementing, training, and support for publishers and editors make it convenient to use the system [1, 4]. This survey simply indicates some main features of an online submission and peer review system.

Another research with the purpose of studying the peer-review process in articles and its necessity for controlling of published scientific work quality was performed in 2013 by Abooyee et al. [5]. It considered the types of refereeing currently practiced, the decision-making methods and the criteria for acceptance of articles, the major decision makers, editor in chief problems, and the current norms in the peer-review process in Iranian scientific journals [5].

Two hundred and forty five scientific journals were covered through survey methodology. They found out that the predominant type of refereeing for articles submitted to these journals is ‘double blind’ and the prevailing method of informing authors about the results of manuscript evaluation is commenting on the manuscript. The results also indicated that of the five main parties cooperating in the peer review process, the editorial board plays the most fundamental role [5]. Understanding this could help system designers to better develop online submission and peer review systems in order to meet the editorial needs.

Features of such systems could be alike [6]. Such features were described in a study by Willinsky in 2005. Open Journal System (OJS), from the Public Knowledge Project was an open source solution to manage and publish scholarly journals online, which could reduce publishing costs compared to print and other traditional publishing processes. OJS was a highly flexible editor-operated journal management and publishing system that could be downloaded for free and installed on a local web server [7].

AllenTrack, Bench Press, EdiKitSM, ESPERE, Journal Assistant, Manuscript Central, and Rapid Review are among the established and recent web-based systems, which were evaluated in 2002 by McKiernan [8]. An outline of the features and functionalities of the system/service, contact information, web site, and vendor, listings of select journals published using a respective software/system were listed within each profile [8].

In Iran, other similar studies have been conducted [5-6]. In a comprehensive research, for investigating the essential features, online submission and peer review software designed and produced domestically were analyzed and presented in tabular format by Sheikh Shoaie [6]. A similar study on content management systems of journals was performed by Salimian in Iran [9]. At that study some Iranian peer review systems as well as the open source, open access system, OJS were evaluated.

Several articles on online submission and peer review system note both success stories [10-13] as well as challenges [4, 14]. These articles are informative, but none of them thoroughly describes the critical features of each of 3 main roles (author, reviewer, and editorial). The functionality checklist provided in this study, will detail and discuss these features in author role.

Thus, the purpose of this study was to examine the author role in online submission and peer review systems of Iranian medical journals.

**METHODS**

The research was a descriptive study, conducted during 2011-2012 in Iran while 199 medical and biomedical journals approved by the Ministry of Health, and Medical Education of Iran were examined to explore what submission system is used. Data were gathered by a standardized, researcher made checklist. The checklist was validated by a panel of five experts in the field of library and information sciences in two rounds. The reliability test was also conducted and the Cronbach’s Alpha was calculated 0.907.

Data were collected and analyzed using the Microsoft Excel 7 and SPSS 18. For the author role in the functionality checklist, 5 main processes were defined. These processes included 1- author registration process 2- manuscript submission process 3- tracking manuscript process 4- dealing with expenses (including required fees and deposits), and 5- providing instruction and guidelines. Each of these processes included a series of actions. The actions along with their related process are categorized at Table 1.

**RESULTS**

Twenty seven out of 199 journals were using no system. Out of 199 journals, twenty first were using systems with inaccessible information or unknown status and 151 out of 199 journals were using 6 online systems. Thus, 48 (27+21=48) out of 199 journals (24% of the target group) were eliminated from the study and 156 out of 199 journals (76% of the target group) were examined. Evaluated systems were 1. Yekta web 2. Niloofar 3. Manuscript Online 4. Customized system of
Table 1. Action and process in author role

<table>
<thead>
<tr>
<th>Process</th>
<th>Author registration</th>
<th>Manuscript submission</th>
<th>Tracking manuscript</th>
<th>Expenses</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action</td>
<td>Selecting desirable username and password</td>
<td>Submitting a new manuscript</td>
<td>Access to manuscript correspondence history</td>
<td>Processing publication fees through the internet</td>
<td>Author guide</td>
</tr>
<tr>
<td></td>
<td>Sending username and password to author email address</td>
<td>Selecting article type</td>
<td>Receiving editor decision letter by email</td>
<td>Receiving the confirmation note of processed fees by email or through the system</td>
<td>Downloadable instructional files</td>
</tr>
<tr>
<td></td>
<td>Changing username</td>
<td>Adding co-authors with their academic affiliations and contact email addresses</td>
<td>Getting informed of decision made after the review process and through the system</td>
<td>Receiving the receipt of processed fees by email or through the system</td>
<td>Online chat</td>
</tr>
<tr>
<td></td>
<td>Changing password</td>
<td>Designating “First author” and “Corresponding author” separately</td>
<td>Submitting a letter to editor and viewing the editor’s response</td>
<td></td>
<td>Support center</td>
</tr>
<tr>
<td></td>
<td>Receiving new password in case of forgetting the password</td>
<td>Re-seqencing list of co-authors</td>
<td>Responder to reviewers (responses are recorded in the system)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Author personal information form</td>
<td>Secondary fields for international author information</td>
<td>Access to prior revisions of the submission</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Supportive organization form</td>
<td>Directing a copy of all manuscript correspondences to author’s email address</td>
<td>Author’s previous manuscript</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Specifying alternate email address and contact information</td>
<td>Suggesting or opposing a reviewer</td>
<td>Author’s submitted manuscript for reviewing</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Indicating unavailability dates</td>
<td>Uploading supplementary materials</td>
<td>Reviewed manuscript</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Specifying an alternate contact person at unavailability dates</td>
<td>Converting a variety of file formats in to a PDF file</td>
<td>Author’s submitted manuscript for proof reading</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Selecting author’s own keywords describing the submission</td>
<td>Indicating an item will be submitted offline</td>
<td>Author’s denied manuscript</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Selecting author’s own keywords describing their area of expertise</td>
<td>Entering metadata for figure files</td>
<td>Author’s submitted manuscript for editing</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Selecting form a publication-defined list of keywords describing the submission</td>
<td>Requiring authors to confirm the PDF file before final submission</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Selecting form a publication-defined list of keywords describing author’s area of expertise</td>
<td>Editing the manuscript prior to submission</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Editing personal information</td>
<td>Auto-save submission for later completion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Access to author’s databank</td>
<td>Revised manuscript folder</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Confirmed manuscript</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

the Tehran University of Medical Sciences 5. Kowsar and 6. the open source, open access system called OJS. Four systems were designed and produced in Iran by four different companies, except the open source, open access system, which is OJS and is a project by the Public Knowledge Project from Canada and the Kowsar system which is designed and produced in Netherlands. Domestically based companies, are Yekta web Afzaare Shargh Company (Yekta web system) 2- IT Promotion Company of Iran (Niloofar system) 3- Health Researchers R&D Institute (Manuscript online system) and 4- Tehran University of Medical Sciences (a customized system). The checklist was sent to the 6 companies to fill.

**A Brief Profile of Systems**

**Yekta web**
- Producer Company: Yekta web Afzaare Shargh
- Country: Iran
- Website: [http://www.yektaweb.com/](http://www.yektaweb.com/)
- System Supported languages: English and Persian
Table 2. System scores in each process

<table>
<thead>
<tr>
<th>Author role</th>
<th>OJS</th>
<th>Manuscript online</th>
<th>TUMS</th>
<th>Kowsar</th>
<th>Niloofar</th>
<th>Yektaweb</th>
<th>Total</th>
<th>Ideal</th>
<th>Comparison index (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>99</td>
<td>65</td>
<td>83</td>
<td>104</td>
<td>98</td>
<td>99</td>
<td>548</td>
<td>109</td>
<td>83.79</td>
</tr>
<tr>
<td>Registration</td>
<td>30</td>
<td>21</td>
<td>27</td>
<td>38</td>
<td>35</td>
<td>30</td>
<td>181</td>
<td>40</td>
<td>75.41</td>
</tr>
<tr>
<td>Submission</td>
<td>36</td>
<td>20</td>
<td>34</td>
<td>36</td>
<td>33</td>
<td>36</td>
<td>195</td>
<td>36</td>
<td>90.27</td>
</tr>
<tr>
<td>Tracking</td>
<td>18</td>
<td>18</td>
<td>16</td>
<td>18</td>
<td>18</td>
<td>18</td>
<td>106</td>
<td>18</td>
<td>98.14</td>
</tr>
<tr>
<td>Expenses</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>9</td>
<td>3</td>
<td>50</td>
</tr>
<tr>
<td>Instructions</td>
<td>12</td>
<td>6</td>
<td>6</td>
<td>9</td>
<td>12</td>
<td>12</td>
<td>57</td>
<td>12</td>
<td>79.16</td>
</tr>
</tbody>
</table>

Table 3. Average and standard deviation of the 6 examined systems

<table>
<thead>
<tr>
<th>Role</th>
<th>Number of systems</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Average</th>
<th>Standard deviation</th>
<th>Ideal system</th>
</tr>
</thead>
<tbody>
<tr>
<td>Author</td>
<td>6</td>
<td>65</td>
<td>104</td>
<td>91.33</td>
<td>14.733</td>
<td>109</td>
</tr>
</tbody>
</table>

Niloofar
Producer Company: IT Promotion Company
Country: Iran
Website: http://www.itpco.net/
System Supported languages: English and Persian

Manuscript Online
Producer Company: Health Researchers R&D Institute
Country: Iran
Website: http://www.manuscriptonline.com/
System Supported languages: English and Persian

Customized system of the Tehran University of Medical Sciences
Producer Company: Tehran University of Medical Sciences
Country: Iran
Website: http://www.tums.ac.ir/
System Supported languages: English and Persian

OJS
Producer Company: Public Knowledge Project
Country: Canada
Website: http://pkp.sfu.ca/
System Supported languages: Multi language

Kowsar
Producer Company: Kowsar Publishing Corporation
Country: Netherlands
Website: http://www.kowsarcorp.com/
System Supported languages: English and Persian

1. System Scores in Each Action and Process
The scores of evaluated systems in each process (registration, submission, tracking, dealing with expenses, and providing instructions) are displayed in Table 2. A system called Ideal was considered hypothetically by the author to better understand the differences among examined systems. The ideal system is a system, which gained the most possible attainable scores in each process and each series of actions. In each group of processes, systems gained the highest scores, are displayed as bold. Total scores of examined systems are more than 80% in compliance with the ideal system (see Table 2).

Comparing total scores of each system, Kowsar is placed at the 1st place and Yektaweb and the OJS together are placed at the 2nd place. Niloofar is another system placed at the 3rd place (See Table 2).

2. Compatibility of Systems Using Standard Deviation and Average
In order to investigate the compliance of examined systems with the research checklist and explore the rate of dispersion in system activity scores, standard deviation and average of features of systems in author role were calculated. It means that all capabilities and features of systems were integrated, and viewed as a whole system and was compared with the control group’s (ideal system) score as an index of evaluation. This integrated system in fact could be a delegate of examined systems available in Iran in this field. According to Table 3, for the author role, the average of 91.33 and the standard deviation of 14.733 were calculated which was more than the half of the total score of the ideal system. Comparing with the ideal system as the control group, the dispersion is not high so it is perceived that all 6 systems in author role had similar capabilities to do proposed processes.

In order to make data more congener, the system making large differences in scattering data was removed (Manuscript Online) and the standard deviation and the average was calculated for 5 systems. By removing the
outlier, the system changes were reduced significantly and data became more homogeneous. As demonstrated below, the standard deviation calculated 7.95, which were almost half of the previous value. The new table of calculated average and standard deviation with presence of 5 systems and discarding the outlier is presented below at Table 4. By discarding the outlier point, the integrated system (all 5 examined systems) got closer to the ideal.

3. Systematically and Non Systematically Performed Actions

In order to find out which and to what extent actions and processes are performed systematically, the percent ratio of total system scores of 6 systems to total ideal system score were calculated. This ratio, called comparison index at Table 2, for the author role was calculated 84%, which means 84% of the expected tasks of the systems were performed systematically. In other words, 16% of the expected actions are not performed within the systems. To investigate non-systematically performed actions, the report of zero points was generated using Microsoft Excel 7. The Table 5 shows a series of different actions not supported by all or some of these 6 systems overall. In order to improve and strengthen the systems, the developers of each system were informed of their own specific zero points through a formal letter enclosing a summary report of the study.

**DISCUSSION**

Online submission and peer review systems reviewed in this study had most of the (84%) features at the author role. In this research, Kowsar was the system gained the most scores and placed at the 1st rank. Yektaweb and OJS both placed at the 2nd rank. A similar study which reviewed almost the same systems in Iran demonstrated different results. At that research by Salimian, Yektaweb was evaluated and it was the system with the highest scores. Salimian did not evaluate the Kowsar system. It could be one of the reasons for the difference in results.

In terms of evaluation criteria for the standard checklist, there is consistency among the results of the researches by Abooyee Ardakan and Sheikh Shoaei.
research which is very similar to the current research regarding the study population, a questionnaire was developed and submitted to a panel composed of 15 referees, editor in chief, software designers and researchers. The essential features for the software were divided into three groups with populations of 10-15, 5-10 and 0-5 respectively. The majority of peer review process software features, in view of panelists, fell into a group of features with a population of 10-15. According to the research results, the features represented by the first group must be taken into account when designing or purchasing a peer review software. The second tier features (with population of 5-10) were recommended given journal’s status and capabilities. The third tier features were altogether discounted due to low population [6]. However, in the present study essential features were not prioritized.

The present practical research would benefit a variety of stakeholders including system designers, researchers, editorial boards of journals, and journal publishers. System developers and designers may use the research checklist to evaluate themselves and standardize their system features. For those 14% journals who have not established an online system yet, this checklist would help in recognizing required features in author role, and evaluating and identifying the right system to apply.

This was an in-depth research and entailed all submission and peer review systems of medical and biomedical journals published in Iran and approved by the Ministry of Health and Medical Education of Iran and this broad range of population had not been studied before in previous studies. Another significant aspect of this study was creating a functionality checklist with Cronbach’s Alpha of 0.907 which could be as a primary base for identifying required tasks of online submission and peer review systems in author role.

**CONCLUSION**

The score differences of each system demonstrate at different systems some features were applied and some were not (examined systems were more than 80% in compliance with the research checklist). To meet required features at the author role it is important to apply all required criteria.

**ACKNOWLEDGMENT**

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