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from the Publisher**

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## **Editorial: 3 Years of JOTED – A Status Report from the Publisher**

The Journal of Technical Education was developed in 2013 as part of a collaboration between the Universities of Stuttgart and Darmstadt, and first appeared in the fall of 2013. The starting point at that time was a comprehensive search of international journals with an emphasis in technical and vocational higher education pedagogy, for which - especially in German-speaking countries - a publication desideratum was clear: First, this search was to determine whether scientific publications were underrepresented in this subject area, and second, whether such work appeared in journals in which they constituted the core areas or on the sidelines, or in non-periodical publications (conference proceedings and anthologies, "gray" literature, ...). The central idea for JOTED was and is to create a quality platform for this transdisciplinary research area and to bundle and communicate scientific approaches and findings while also contributing to the formation of the field's identity. In its core alignment with technical teaching JOTED is focused on the scientific exchange of research results in the related fields of engineering and applied science education, and is aimed at academics as well as teachers. The journal aims to integrate general, vocational and academic areas of expertise in the context of technical and scientific points of reference, while didactic and sociological aspects such as psychology, history and philosophy are also embraced.

With edition number 1/2015 JOTED will have appeared four times. Compared with other, long-established magazines that is not many, but for a newly established journal, however, this will mark an important achievement. This milestone represents nothing less than the prevention of the journal's immediate disappearance after the first or second edition due to the sparsity of submitted essays. The probability of this happening is relatively high, because in the almost unmanageable forest of scientific journals there is hardly anyone who is desperately crying out for another title. Science communities have established their own publication organs, arranged by reputation but also thematically and by content or methodological specifics. In addition to these periodicals, conference proceedings and thematically oriented collections are continually published, while so-called "gray" literature, in the form of self-published research findings, can be spread over the internet at low cost and with a wide reach.

Another question mark regarding the implementation of JOTED was caused by its thematic orientation. As a hybrid of technology, natural science, university didactics and vocational education the journal opens up a broad, but so far hardly consistent, field of reference. In recent years this has been accentuated by MINT fields, which address entirely different disciplines. However, a central, if not constitutive feature of such disciplines is a specific portfolio of relevant scientific journals in which respective lines of research, approaches and findings can be published, and through which junior researchers can achieve a profile and establish themselves in relation to the field. The editors of JOTED have assumed that for MINT disciplines, interdisciplinary or transdisciplinary fields have been opened that are not,

or only unsatisfactorily, addressed by discipline-oriented magazines. The field of professionally oriented technical didactics has only just emerged, and though technical universities have been established for some time, for decades they led a shadowy existence, since they were barely well-known to sufficiently fill professorships.

Also for JOTED to consistently implement an open access approach to publishing a scientific online journal was and is quite risky. As before, printed journals continue to dominate the publishing arena. Switching to an online format, or providing such an offer in addition, is usually done in conjunction with a regulation of access, which (even though mostly only conditional) is realized through marketing. The retrievable resources can thus only be used in full, or at least in part, at not inconsiderable expense, particularly for the editorial offices involved. JOTED completely avoided such a process because it makes all its essays available for free and directly accessible and thus dispenses with the need for advertising.

A final point to be made in relation to this is the problem of the increasingly strategic use of publications in science. In the wake of rampant demands for quantification through the evaluation of "Research Excellence", for example in relation to the process of appointments, or the evaluation of research proposals, is the increasing importance not only of the number of publications a candidate has but also citations of that work by other scientists. The idea of journal rankings using ratings of A-, B-, C- and also of unranked journals arose, and the higher the ranking of the journal that accepted an essay, the greater its impact as a publication in the context of excellence evaluation.

In summary, the basic situation of JOTED and the relevant conditions it operated in were far from optimal. The two key issues that arose for the publishers were to attract enough contributors and whether the accepted essays would then receive a wide enough circulation. This can be answered in relation to both issues from the current perspective with a cautious yes. Although with four articles in the current issue the number of individual contributions per issue has decreased - in the first edition there were 11, then six in the next two - nevertheless this is still viable, especially since issues appear every year and the essays are of a high quality. But it was envisaged that an average issue would consist of six essays. But if such a quantitative consolidation is to be achieved it must continue to reflect the perspective of the publisher with regards maintaining high quality. In the new issue a survey is to be included through which we expect to gather more details about our readers, especially about what interests them, what does not, where they see our strengths, where our weaknesses are, what we lack and what might be of interest in the future concerning fields of coverage. (<https://www.umfrageonline.com/s/joted>).

Prior to this survey, an analysis of previously published essays was conducted. This in turn allowed us as publishers to drive the development of the journal forward, but also allowed the readers and authors to help us determine the profile and content that JOTED currently has.

The following relevant criteria were included:

- Details and credentials of the authors (number, associations, institution)
- Research approach (theoretical / balanced, empirically qualitative / quantitative) or "Good Practice"
- Education (vocational schools, general education schools, corporate training, university education)
- Thematic priorities (e-learning, psychology of learning, professionalization)

Subsequently, the results of this analysis can briefly be summarized as follows:

Of the 26 previously published essays eight were written in English. Most of them (13) were of single authorship, with nine papers by two authors, four essays by three authors. Three essays came from foreign universities (Technical University of Delft, Netherlands, Simon Fraser University, Burnaby BC, Canada), the remaining 23 essays were from German universities and none of the essays came from a non-university context (universities, colleges, schools, businesses, etc.). In 11 articles, vocational technical didactics was most strongly represented, followed by general technical didactics (7), vocational education and engineering, each with (2) and finally once each on work in the sciences, educational psychology, philosophy and pedagogy. Technical universities did not provide an institutional background for any of the published papers.

In terms of categorical classification, more than 1/3 (9/26) of the previously published essays can be described as using empirical approaches, ie they describe work conducted in relation to a research question, the theoretical and empirical starting points of a research methodology and the findings thus generated in order to provide answers to that research question. Four of these works are based on qualitative explorative approaches, five on quantitative hypothesis-based approaches. Furthermore, seven theoretical works can be determined as dealing with disciplinary and interdisciplinary issues, six balanced approaches in which theory and research positions are assessed and interpreted, three essays that describe and reflect on "good practice" and one programmatically accentuated essay.

Most commonly, with seven essays, the school-based field of vocational training was addressed, followed by seven essays each in the field of general engineering teaching and technically-accented university teaching. Five works can be located in the field of operational and technical education and training. In this regard one essay refers both to school, as well as on the job, training in technical professions. Added to this is an essay that is relatively non-specific and refers to a special form of learning in technical education. In addition to the different fields of education there are also particular thematic areas treated in previous JOTED essays: These include the professionalization of technical education personnel (six essays), computer-assisted learning (four essays) the psychology of learning (three essays) and technical experiments (two essays). Cutting across these thematic priorities are a total of seven essays that present arguments relating to technical skills.

The scope of the essays is in line with the international average for sociological work of approximately 60,000 characters (without spaces) that (roughly) corresponds to 20 normal pages. The same applies to citation density with an average of about three references per page, and the scope of bibliographies with about 40 individual sources. Although JOTED is an "electronic journal," most of the sources still refer to printed works. In this regard another more accurate means of quantification would be the position taken in relation to those sources, but this hardly seems interpretable. The decisive factor is ultimately the quality of the individual document, which is highly dependent on its relevance and ultimately determined by the substantive nature of the argument.

The qualitative assessment of the previous JOTED essays was performed prior to their publication via a triple layered anonymous review process. The implemented criteria follows international standards, with any one-sided focus on a specific research paradigm explicitly excluded. What is of importance across the board is (1) to consider the status of the findings and the theoretical context and (2) its importance to the state of knowledge in the relevant discipline. To address the first overarching aspect (1) a work is judged explicitly on whether the current state of research is addressed, what the practical relevance of the work is, and the level of clarity and sophistication of the argument presented. The second overarching aspect (2) is judged on the basis of whether or to what extent the writing is new (both in terms of the subject, and also in relation to the work of the author) and what contribution it makes to promoting theoretical developments. When the findings of an empirical study are under consideration, a further factor (3) is applied, namely to check whether a study has been concluded, is being implemented or in preparation, whether any information necessary for testing the methodology and evaluating its findings are given, whether the study design is presented and established methodologically, what qualitative or quantitative methods are implemented, whether the statistical processes are understandable and to what extent the performance criteria are met. In addition to these substantive criteria there are also formal ones relating to language and scope, citation stringency and rigor in the presentation of tables and illustrations. Across all submissions a final judgement is made on whether or to what extent an essay successfully presents a self-contained argument, and, above all, whether the final discussion adequately represents, addresses and answers the original research question.

Colleagues from different disciplines were used as reviewers. At this point we would like to here publically put on record our sincere thanks to them, because the reviewers' efforts JOTED would not exist. The reviews were on the one hand quantified (according to graded or bipolar ratings), and on the other hand by attention to diverse and specialised supplementary information, so that only 30% of the submitted essays were not published. The decision as to whether an article would be dismissed was reached if 2 of the 3 reviewers were of this opinion. Essays that were declared immediately "ready to publish" amounted to only 9% of the accepted work, and this decision was also reached if 2 out of 3 reviewers claimed to have "no objection" and if no substantial defects were found by the 3rd reviewer. In approximately half of the remaining 61% of essays, small, mostly formal improvements were necessary, while others had to introduce more substantive modifications. 30% of the essays submitted were involved in predominantly open and constructive processes of editing on which authors and editors interacted intensely.

Unlike printed formats, online journals offer (conditional) options that directly cover the extent to which they can be accessed. The previously published editions of JOTED resulted by 16/04/2015 in a total of 16.980 downloads. Editorials are also included in this number. This means that every article in the first three editions has been read 600 times on average. In the absence of reliable comparative figures it is hard to interpret this result. But from the perspective of the publishers, it seems at best a confirmation that the essays are encountering sufficient interest. In the citation index of Google Scholar two essays reached parameter 1, five essays parameter 2 and two essays parameter 3. Again, the question of interpretation arises. On the one hand these figures quantitatively appear small, while on the other hand the subsequent citations appear in quite substantial publications. On top of this is the time factor, because the period for a high-quality journal article to be assessed is currently about one year, to increase the probability of citations. However for a JOTED essay at this time this is significantly less. It is therefore necessary to wait and continue to monitor the situation.

The viewpoint of the editors regarding the thematic breadth, diversity and quality of content previously published in JOTED essays can be briefly summarized here along with our expectations. As initially discussed, the implementation and continuity of this format in the Open Journal System in many respects is an ambitious and equally difficult undertaking, in particular due to its cross-disciplinary and trans-disciplinary orientation. We see this reflected in the quality and relevance of the essays, their thematic range, and how they open up and cross clearly visible interdisciplinary lines. In addition, however, we see a quite large development and improvement of areas, particularly in quantitative terms, but also in relation to the so far under-represented field of technical didactics, exemplified in the work of technically-oriented technical universities. Therefore we continue to urge all potential authors to submit their manuscripts to us. The spectrum of the journal is broad and for those who deal with technical learning from different directions, approaches and levels, it opens up the opportunity to present and communicate their ideas, approaches, theories, surveys, findings, results and perspectives. The reception of each submitted work is of great interest to us and especially instructive because it has shown us the potential for new contacts and opened up possibilities within a hardly predictable world.

We look forward to our subsequent work on this "project" and hope that JOTED over the next few years will establish and consolidate itself further. On the one hand, of course, this is because we hope to support scientific communications in our field, but on the other hand, it is also because it interests us and is personally enriching.

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