UiT-Researchers' Attitudes and Practices Towards Open Access Publication: Lessons Learnt for Improving Self-Archiving in Institutional Repository

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ABSTRACT

Objective. Using The Munin Repository at UiT The Arctic University of Norway as a case study, a survey was conducted among the UiT researchers to examine their attitudes and practices towards the repository and towards open access (OA) publications.

Methods. The survey questionnaire was sent to all employees at UiT between August and October 2016, but only academic staff in research positions, including PhD students, were selected for the analysis. 200 researchers responded to the survey.

Results. The study found that researchers are supportive of the principle of OA but are less keen on contributing to their institutional repositories for a range of reasons. These include the process being quite a hassle, academics' uncertainty over certain legal, copyright and peer review issues, prestige issues, and uncertainty over the appropriate version to deposit or self-archive.

Contribution. The statistical results can be used by readers as benchmarks to compare with their own institution's figures. Conclusively, the study found that more than 90% of the researchers agreed with the OA principles, but still 54% of UiT researchers did not archive their research documents in The Munin Repository.

INTRODUCTION

Open access (OA) refers to online research outputs which are free of all access restrictions (e.g., access tolls) and with a license that allows fair use and reuse, and fair re-distribution. However, in this study, OA is perceived in two ways: 1) self-archiving in institutional repositories, and 2) OA publishing (e.g., in journals).

OA can be applied to all forms of published research outputs, including peer reviewed and non-peer reviewed academic journal articles, conference papers, theses (Schöpfel & Prost, 2013), book chapters (Suber, 2013), as well as monographs (Schwartz, 2012). Such documents can be openly accessed through self-archiving in an institutional repository such as The Munin Repository at UiT The Arctic University of Norway or a central repository such as PubMed Central (Gajović, 2017; Harris, 2012). This is also referred to as *green OA*. The publishers may demand a delay (embargo) on when such documents in the repository can be made OA (Suber, 2012). The documents can also be made OA immediately upon publication, and this is called *gold OA*. Gold OA usually takes the form of publishing a scientific article in either OA journals or in hybrid OA journals (Suber, 2008). Hybrid OA journals are subscription-based journals in which some of the articles are OA only on condition that their

article processing charge is paid. The author payments for such OA publications, often referred to as Article Processing Charges (APCs), can be paid by the author's institution, the funder or the individual author (Suber, 2012).

OA journals may or may not charge APCs. Journals, which do not charge APCs, need to have support from a sponsor. A university running an OA publishing activity or a journal may decide to support all the expenses without any APCs or other forms of charges. While this can be common among the fully gold OA journals listed by the Directory of Open Access Journals, the majority of the journals offering OA actually charge APCs (Crotty, 2015). For more than two decades, OA publications have mushroomed into a global industry, driven by APCs rather than traditional subscriptions (Gentil-Beccot, Mele, Holtkamp, O'Connell, & Brooks, 2009). With such economic ties to OA, can OA lead to discrimination against authors who cannot afford to pay the APCs? Not all researchers or authors have the support of their institutions, as is the case in countries like Norway and more specifically at UiT.

OA extends the reach of research beyond its immediate academic circle. It enables anyone with access to the Internet to read and use scientific documents. Horizon 2020 guidelines state that OA publications of research results is an obligation (Research & Innovation, 2017). UiT aims to be an institution advancing to follow this guideline, and to make available information and knowledge on how to find, read and use OA. However, as indicated above, the articles published in OA journals often demand "author-side payments", that is, APCs, to cover publishers' costs.

As a motivation for OA publication at UiT, the university has made allocations in its budget to cover author-side payments for OA publishing. The allocated budget fund can cover author-side costs as well as APCs and similar charges in OA publications (Frantsvåg, 2011).

The university library is the body responsible for the administration of the publication fund for OA publishing, including making the decision to accept or to reject the payment of the APCs and similar charges proposed in the author's application for OA publishing. Among other rules, the corresponding author must be a member of the UiT, and the journal must be registered at Level 1 or 2 in the Norwegian Centre for Research Data's channel register and in the Directory of Open Access Journals as a seal of quality. Besides, the published full text document must be uploaded to CRISTin (Current Research Information System in Norway) no later than at the time of publication. These rules are geared towards ensuring that the OA publication fund is used appropriately and effectively to attain its goals. As a result, as Frantsvåg (2013) noted, gold OA has gone up from 5.4% in 2004 to 16.8 % in 2013. Contrary to earlier observations, there is a surge in the use of the hybrid OA option (albeit still weaker than gold OA). If the fund (such as the APC incentives provided by UiT) is an explanation for this trend, the fact remains that there is a clear tendency for researchers to publish in OA in its different "flavors" (Willinsky, 2003). The interesting question here is, why? Furthermore, there is a debate over how economical and how reliable the various ways of OA publications are, including quality assurance issues; and researchers have expressed concern that the institutional repositories are not user friendly and are also time consuming (Elsevier Library Connect, 2017; Ashikuzzaman, 2018). Is this the case for UiT researchers? If so, how can librarians and information professionals address such issues?

The objective of this study is to find out researcher's attitudes and practices regarding OA of their scholarly documents, in order to better understand how self-archiving in institutional repositories can be improved, so as to improve accessibility to qualitative document-sets for the worldwide research community. The Munin Repository and its users at the UiT The Arctic University of Norway are used as a case study, with a questionnaire used as a data collection instrument. Based on the study results and documented literature, this

paper draws conclusions for how self-archiving can generally be increased in institutional repositories, as well as how the manageability, visibility and accessibility of qualitative scholarly documents can be improved. More precisely, this case study investigates to what extent the researchers at UiT use OA publishing, and their attitude towards it; and the impediments and reasons why UiT researchers do or do not self-archive their publications in the university's repository. The study also seeks to sensitise the repository administrators to how they can address their patrons' needs in order to improve self-archiving.

This work adds to previous OA studies such as that by Hulela (2010). The current study considers the stakeholders' interests, that is, the researchers' attitude and practices towards OA policies, with special focus on self-archiving in institutional repositories. Institutional repositories have been known to be easier to establish and manage than OA journals which require substantial means and are slow to start. Nevertheless, they still seem to be inadequately understood by researchers because of the perceived peer review issues and problems pertaining to which version of a paper to deposit or self-archive. The specific research questions the study investigated are as follows:

- What are the attitudes and practices researchers at UiT have towards OA when using The Munin Repository?
- To what extent do researchers use The Munin Repository?
- Do researchers know of the existence of The Munin Repository?
- Are researchers willing to deposit in The Munin Repository?
- Are the researchers aware of all practicalities required in depositing their work in the Repository?
- Are they aware of the copyright agreement signed with the publishers?
- Do researchers have a good grasp of OA, its rules and principles?

OA IN NORWAY: AND WHY THE CHOICE OF STUDY HEREIN

OA in Norway has grown exponentially. Norway is one of the countries among those ranked highest and most active in terms of their OA share (Sotudeh & Ghasempour, 2018). Statistically, Norway has been proven to be among one of the active countries in the OA scene, with 59 and 55 sites in the Registry of Open Access Repositories (ROAR) and Directory of Open Access Repositories (DOAR) respectively (Jisc, 2019; University of Southampton, 2017).

Norway's early OA programs are well detailed through the Norwegian Council for Higher Education, and its recommendations, in hindsight, seem very modest (Björnshauge & Björk, 2005). However, as argued by UNESCO (2017), arrangements of OA awareness in Norway, and its implementation as stipulated in the PASTEUR4OA Project Report (2014), does not seem to accommodate a strong connection between different stakeholders. The needs or initiatives from the lower level, that is, of the individual researchers seems not to be reflected in the arrangements of OA in Norway. Besides, it makes OA in Norway being perceived as conflicting with academic freedom (UNESCO, 2017). As such, despite the fact that the research, studies and policies show the importance OA has acquired in Norway and the world as a whole, stakeholders' *wants* at the lower level are not strongly reflected in the policies and programs that are made on a national level (top level). This implies that indeed there is still a lot of work to raise OA awareness on the level of the individual researchers. Therefore, the study herein will help to illuminate more knowledge from the stakeholders'

point of view, that is, researchers themselves (bottom-up), on their attitudes and practices towards OA issues, including self-archiving.

The subject under study is of the utmost importance, as The Munin Repository at UiT clearly has a leading experience that has been studied (Frantsvåg, 2011, 2013; Moksness & Olsen, 2017), but needs to be complemented by a kind of study herein that asks the quintessential question of how researchers at UiT grasp and use OA in their publication habits. Besides, in one of the policy papers, issued on request by the Nordic Committee of Senior Officials for Education & Research within the Nordic Council of Ministers, reported that *OA still needs more efforts*. All such issues make OA in Norway a subject that is ripe for more development. The lessons learnt can obviously be relevant to close the universal gaps/weaknesses needing further attention, within this topic/subject. More so, the statistical results of this case study will act as the benchmarks that the readers can use to compare with their own institution's figures, and hence the main contribution of the paper to the world at large.

THE MUNIN REPOSITORY AS A CASE STUDY AND WHY

Although The Munin Repository at UiT is relatively new (2006), its good display of what is produced and showcased universally represents many other institutional repositories. Thus, using The Munin Repository as a case study can effectively contribute to addressing similar issues in other institutional repositories worldwide. For instance, the statistics of the current case study of The Munin Repository can contribute significantly as benchmarks in better understanding of how *self-archiving* in institutional repositories can be improved. Self-archiving, which was first coined by Harnad in 1994 (Harnad, 1995) refers to institutional data repositories in which scholars can deposit a manuscript version of an article, typically without it being peer reviewed (Moksness, 2018). As such, the perception of lack of peer review decreases the researchers' intentions in self-archiving or publish through OA in general. As argued by Mockness (2018) peer review quality assurance is only associated with non-OA journals. Therefore, much as institutional repositories can be very popular among researchers and or scientists, still there are some misconceptions that are practically important to address if self-archiving is to be improved.

Investigating The Munin Repository's usage and researchers' attitude towards it will additionally help institution managers steer their repositories in the right direction while improving self-archiving, will make more research knowledge openly accessible to many. There have been numerous studies (Bamigbola & Adetimirin, 2017; Boavida, 2015; Chilimo, 2016; Hachani, 2017; Lam & Chan, 2007) worldwide, regionally and locally that could be used for comparison to answer the question that is nagging OA researchers and institutional repositories' creators and managers—what does it take to make OA repositories more prominent in any given institution? To sum up, it can be argued that even though The Munin Repository in its basic aspects (as is with other institutional repositories) is matured, rather known and with the infrastructure in place, there is much work to be done in order to increase self-archiving, thereby keeping up the enthusiasm for free access to research publication.

MATERIALS AND METHODS

A questionnaire survey was conducted at UiT between August and October 2016 among UiT researchers. The survey questionnaire was sent to all workers at UiT, but only academic staff with research position, including PhD students, were selected for the analysis. 200 researchers responded to the survey. There was no incomplete questionnaire and all 200 were included in

the analysis. No biological materials were involved. Informed consent was obtained, that is, the subjects were properly instructed both verbally and in writing; and their participation was voluntary. Data was anonymously collected, using Google Forms. The details of the questionnaire used is in Appendix 1. For triangulation purposes, literature archives, records, reports and other published documents were also consulted.

The SPSS 25 statistical package was used for data entry and analysis. Descriptive statistics were derived; Chi-square tests of independence for categorical data, and regression analysis of numeric data were performed. The level of significance was set at 5%. Depending on questions in the survey, quantitative data used was derived directly from the individual responses based on qualitative form of content analysis to give meaning.

The results from the survey and available literature were used to find the missing link between the researchers' attitude and their actual practices towards OA, particularly when it comes to the process of archiving the final draft of their accepted manuscript and/or journal articles in The Munin Repository. The potential challenges encountered by the researchers in practising OA publication helped to enlighten the ways and means of increasing self-archiving in The Munin Repository, and consequentially, in similar institution repositories worldwide. This therefore, can significantly enhance of OA publication for the purpose of maximum visibility, accessibility and usage of qualitative scholarly research output globally.

RESULTS

The results obtained from the UiT repository showed a rise of almost 83% of contents published in The Munin since 2010 (Figure 1). There is a significant positive relationship between time and The Munin Repository contents ($r(7)=0.97$, $p<0.001$).

The total number of documents in The Munin Repository has been increasing steadily every year (Figure 1). The good fit of the extrapolation line indicates that future numbers of documents deposited in The Munin Repository per year can be predicted, if UiT students and researchers continue archiving their scholarly work in the repository at the current rate. The documents in The Munin Repository are accessible 100% as OA, with embargo where necessary. By March 2018, 0.6% of the 11838 items in The Munin Repository (Figure 1) had been embargoed.

Figure 2 shows that about 34% are journal articles, of which almost 90% are peer reviewed.

The survey results suggest that the faculty to which the researchers belonged affected their attitudes towards OA principles ($p<0.05$), with 95% confidence intervals of between 0.044 and 0.053 (Table 1). Compared to other faculties at UiT where the majority strongly agreed to OA, researchers from the Faculty of Law indicated that they mildly agreed with the principles of OA. The majority of the UiT researchers indicated that they kept final drafts (95.5%), while only 46% archive in The Munin Repository (Table 1).

The results indicated that the majority across all age group strongly agreed to the principles of OA (Figure 3). Senior researchers between the age group 50-59 years agreed to the OA principles, and none of the early career researchers within the age group <30 years were strongly against the principles of OA. The UiT researchers (approximately 4%) who indicated ignorance of OA principles were within the age groups 30-39 years, 40-49 years and 50-59 years. The majority of researchers who were strongly against OA principles included the age between 30 to 49 years (the age group that obviously included early career researchers).
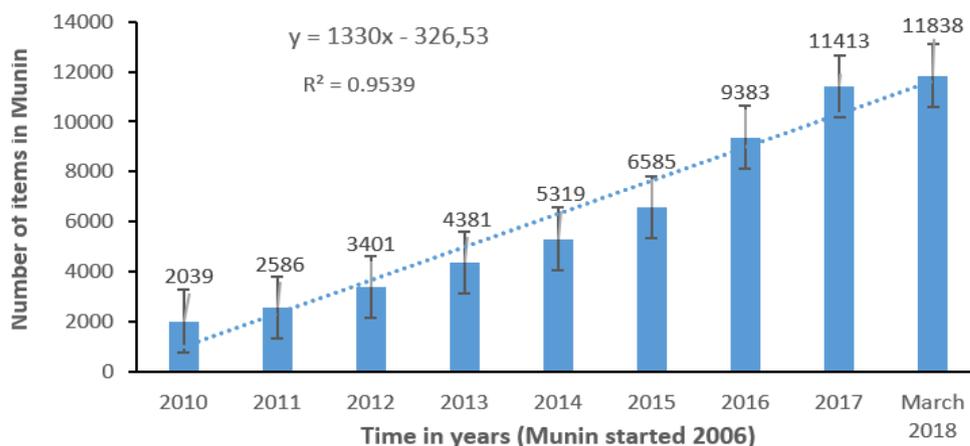
Figure 1. Development of The Munin Repository over time
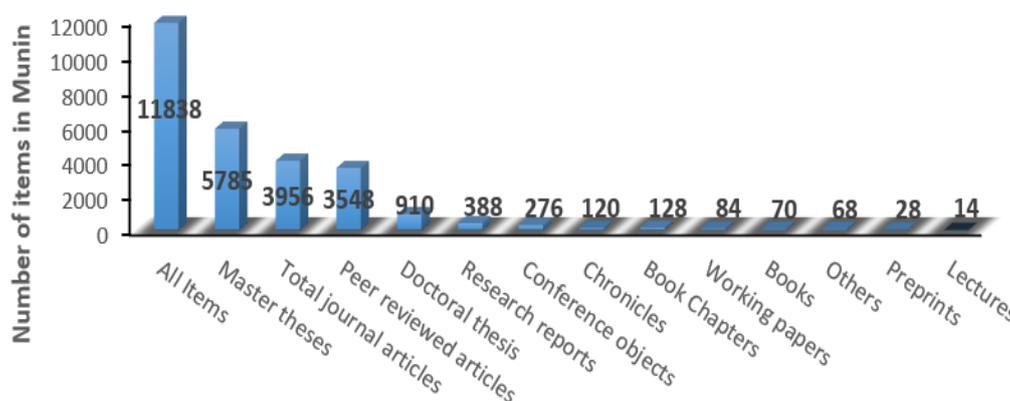
**Figure 2. The Munin Repository's content per item type**

Most of those who indicated they kept final drafts were among young career researchers/PhD students who had not yet published.

In agreement to figures indicated in Table 1, UiT researchers who did not archive in The Munin Repository (54%) came from all age groups (Figure 4).

Years of research experience did not significantly affect the UiT researchers' agreement to OA principles, including their attitudes and practice in keeping the final draft and archiving their research results in The Munin Repository. The majority of UiT researchers in each group, based on years of research experience, strongly agreed to OA principles, and almost all in the group indicated that they kept their final drafts (Table 2).

The majority of researchers supported OA principles and more than 74% of the researchers were willing to archive their final draft in The Munin Repository (Table 3). However, almost half (45%) of the UiT researchers did not know OA requirements as recommended by their research funders. They indicated that they did not read the funders requirements. Could it be one of the reasons why only 46% of the UiT researchers submitted to the university repository (Munin)? More than 50% of the UiT researchers did not know The Munin Repository well (60%), and more than 10% did not know about it at all.

More than 17% of the UiT researchers chose not to archive in The Munin Repository because they were not sure if it was permitted by the publishing contract, while almost 10% did not archive in The Munin Repository because they did not know how to do it (Figure 5).
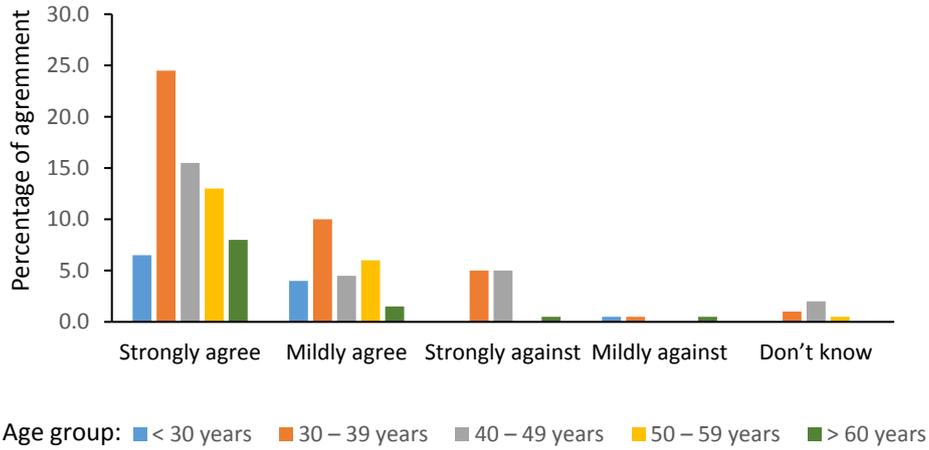
Figure 3. UiT Researchers' agreement to open access principles in %, based on Age (n=200)
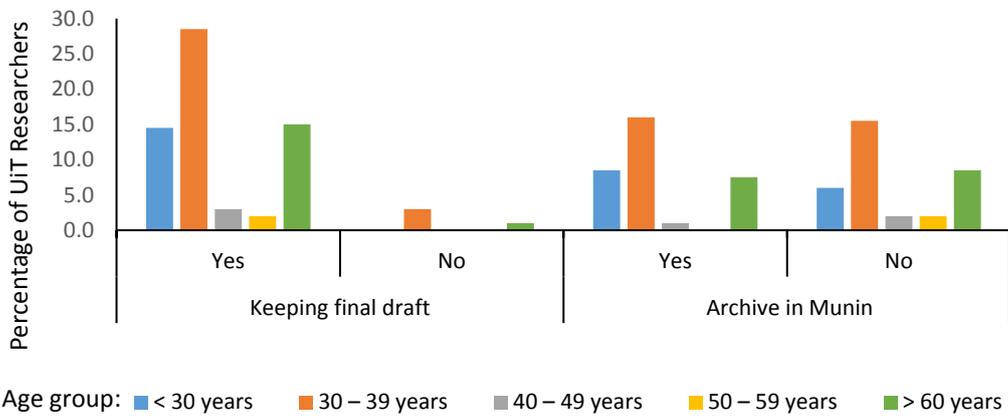
Figure 4. Percentage of UiT researchers keeping final draft and archiving in Munin per Age group (n=200)
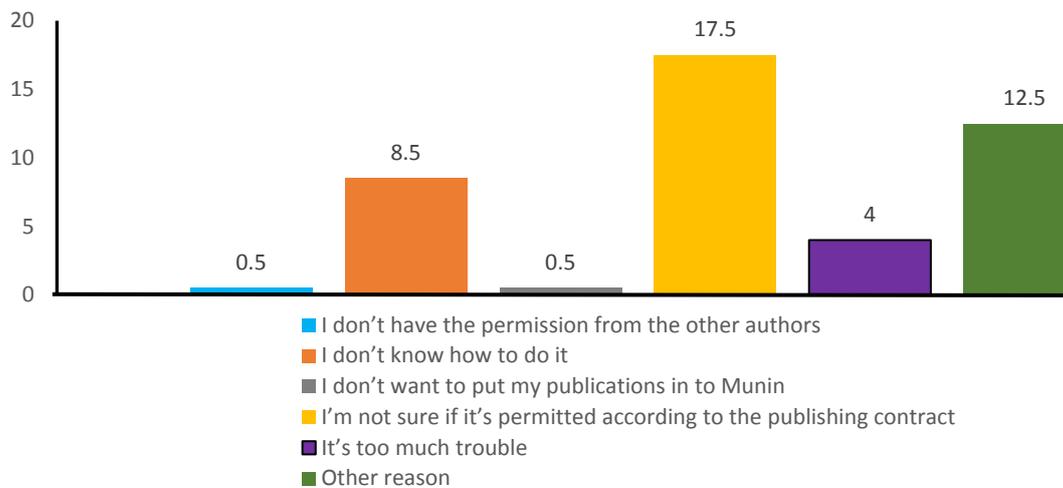
Figure 5. UiT researchers who know Munin and chose not to archive in Munin (quantified in % per reason)

Table 1. UiT researchers' attitudes and practices, based on faculty (% of n=200)

Faculty*	Agreement to OA principles					Keeping final draft		Archive in Munin	
	Strongly agree	Mildly agree	Strongly against	Mildly against	Don't know	Yes	No	Yes	No
Biology, Fisheries & Economic	10.5	4.0	0	0	0	14.5	0	8.5	6.0
Humanities, Social Sciences & Education	22.5	7.0	0	0	2.0	28.5	3.0	16.0	15.5
Sports, Tourism & Social Work	2.0	0.5	0	0	0.5	3.0	0	1.0	2.0
Engineering, Science & Technology	0.5	1.0	0	0.5	0	2.0	0	0	2.0
Science & Technology	12.5	3.0	0	0.5	0	15.0	1.0	7.5	8.5
Health Sciences	16.5	7.0	1.5	0.5	1.0	26.0	0.5	10.0	16.5
Law	1.5	3.5	0	0	0	5.0	0	2.0	3.0
Fine Arts	1.5	0	0	0	0	1.5	0	1.0	0.5
TOTAL	67.5	26.0	1.5	1.5	3.5	95.5	4.5	46.0	54.0

Notes: *P < 0.05

Table 2. UiT Researchers' attitudes and practices based on research experience (% of n=200)

Years of research experience	Agreement to OA principles					Keeping final draft		Archive in Munin	
	Strongly agree	Mildly agree	Strongly against	Mildly against	Don't know	Yes	No	Yes	No
< 5 years	23.5	9.5	1.0	0.5	2.5	35.0	2.0	17.0	20.0
5 – 15 years	25.5	9.5	0	0.5	0.5	35.0	1.0	17.0	19.0
> 15 years	18.5	7.0	0.5	0.5	0.5	25.5	1.5	12.0	15.0

Table 3. UiT Researchers' knowledge and practices about open access (% of n=200)

	Know about OA requirement recommendation from their funders	Support OA publication principles	Indicate willingness to archive their final draft in Munin	Submitting to the OA university repository (Munin)
Yes	55.0	93.5	74.5	46.0
No	45.0	6.5	25.5	54.0

Other reasons specified by the UiT researchers, for not archiving in Munin are as follows (quoted):

> *I'm not always permitted to publish the illustrations in my articles. I want to add the alternative: "It's too much trouble."*
>
> *Have asked the library but not yet gotten a response on how to do it. Faculty of Humanities, Social Sciences and Education.*
>
> *I am not sure if uploading to CRISTin automatically deposits material in Munin?*
>
> *Nytilsatt.* (Newly employed)
>
> *For some journals, only the accepted version of the paper, not the final version can be published in Munin. Hence, there are changes made to the paper before final publication, and so, the version found available is not the finalized paper, and it seems better to leave this version out of the open Internet and only have the actual finalized paper "out there".*
>
> *I wish the people working with Munin should include the material as is. For example if it's an article-in-press, they should indicate it as In press and not as Manuscript. This disappoints authors.*
>
> *I have little knowledge about how to do this, it has never been a theme in my department. I wouldn't mind getting an information session on this. It probably is easier and less time consuming than I suspect, but not knowing where to start, I have no idea.*
>
> *I didn't know you could/should do this.*
>
> *I think we need more info. Our project got funding before the OPEN ACCESS was usual and many editors do not allow us.*
>
> *It has to be easy to use and take little time to make it accessible to be worth it.*
>
> *It is very difficult to know if you are allowed to put things there and when (e.g. after one year of the original publication) you are allowed to do so. I do not put texts published by international publishers there, only Norwegian.*
>
> *It is hard to know what can be, and what can't be, published in Munin.*
>
> *Jeg har ikke tatt meg tid til å sjekke med tidsskrift og forlag jeg har publisert i om det er ok for dem. [I have no time to check with the journal and publisher, where I've published in, if it's ok for them.]*
>
> *Jeg oppdaterer alt i CRISTin. Men hvordan ting kommer videre til Munin og hvordan det er med rettigheter mm til fulltekstversjoner, vet jeg lite om. [I update everything in CRISTIN. But how things go on from there to Munin and how it is with copyrights etc., to full text versions, I know little about.]Partly the relevant articles are not open access, those that are, are available through academia.edu, which I find is excellent.*
>
> *The journals have rules. I don't know them and it takes too much time to find out.*
>
> *I have my publications on my own website and on Academia.edu.*
>
> *The publishing contract has often been a hindrance. Now I seek to publish where it is possible. It is more difficult when you are inexperienced and cannot afford to choose.*
>
> *Other reasons, and that when I asked about Munin in the Library Information Desk, was told to check on the website, and thus time consuming.*
>
> *We have to enter all the details into CRISTin already. Wouldn't it be possible to let the system determine automatically, when the embargo time is over, import it into the*

system and send an email to the UiT researcher to forward to their colleagues such that the only thing to do would be to click, yes, import the article into the system, all other authors agree. Suggestions for technical improvements in Munin. I am about to publish my first article, which means I haven't had the chance yet to publish something in Munin.

Most of the journals that I want to publish in are not Open Access, so I won't publish in Open Access until the relevant journals in my field are available.

I don't put things in Munin because of copyright restrictions. This has also affected PhD students who have written article-based theses-- the articles can't be reproduced in Munin.

I don't like the idea of the university forking out huge sums of money to publishers in order to buy Open Access for journal articles, so I have not taken this route to secure it. In any event, there are different degrees of and different costs for them. The publishers are trying to milk this.

I am co-editor of a journal edited at UiT and published by Taylor & Francis that is not Open Access, but where a degree of access can be purchased. I don't like this arrangement, but there isn't much that can be done. People wanting to re-publish old articles from our journal for Festschrifts have to pay a lot for the privilege, which is discouraging. To make matters worse, the earlier issues (pre-1997) of our journal are no longer available through UB because the publisher is demanding too much money. Ridiculous for a journal that is edited at UiT.

UB once contacted us about publishing Open Access through them, but we decided not to, because our current publisher (despite the above problems) is a major international actor and our journal has a better status if published through them.Authors are not always allowed to keep the final drafts (cf. Walter de Gruyter). And the final drafts are typically not proofread and they lack pagination. They look bad and should not be referenced.

Final draft is ugly and could contain mistakes that are later taken out by the editor service.

The reason why I answered "No" in the last question (16) is that I don't see why there would be a need to keep a final draft in the Repository if the publisher has given permission to make the contents of the article public. In that case, wouldn't the publisher agree to make the published version available too? My question is due to me being very new to the field. In general, I feel that the Repository should contain published versions only.

Yes, but my Munin text do not get much attention, even if they are linked to via Research gate, people ask for copies of the printed version.

I have no strong feelings about Munin because I presume hardly anyone outside Norway (even UiT) has ever heard of it. For international outreach, the actual journal is the thing.

The published version is not identical to my final draft. Referees have made valuable suggestions for improving the manuscript, and I am therefore not comfortable with publishing my draft in Munin.
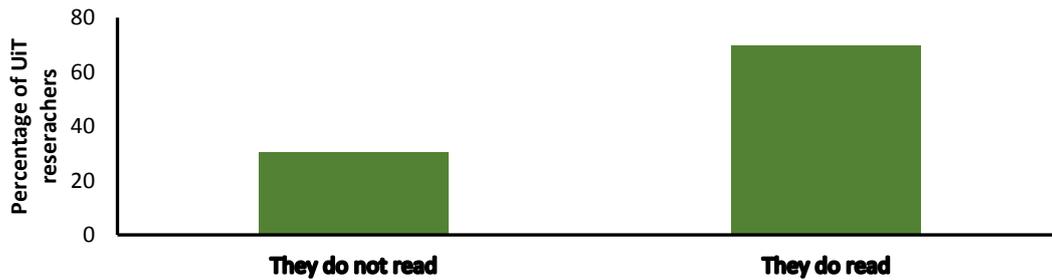
Figure 6. Percentage of UiT researchers who do not and do read the copyright transfer policy before submitting article to a journal.
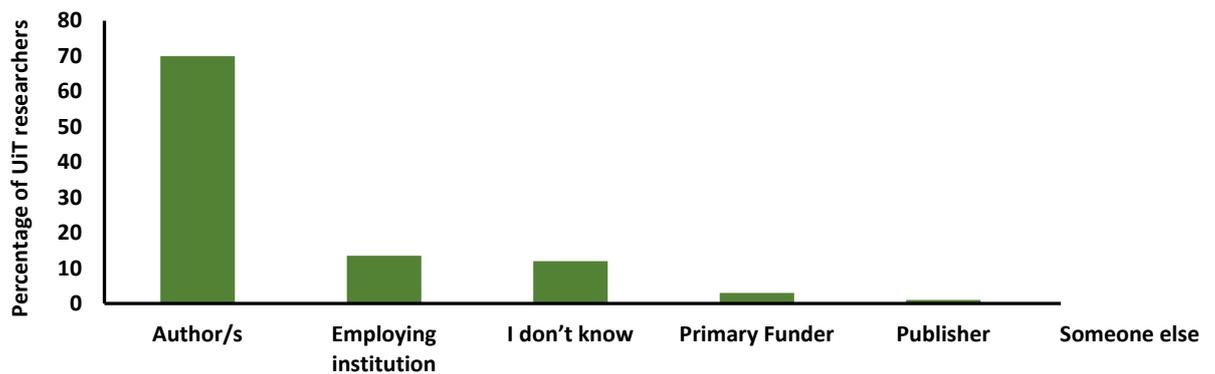
Figure 7. UiT researchers' views about who should own the copyright of research publications (%)

The survey results also indicated that 70% of the UiT researchers did read the publication agreement between the author and publisher (Figure 6). This implies that at least 30% of the UiT researchers were ignorant of their copyright transfer to the publishing journal.

Nevertheless, the majority of the UiT researchers indicated awareness of copyright ownership (Figure 7). Their views about copyright ownership of research publication were compatible with what is currently required by the Creative Commons licenses, which most of the OA publishers use. Many OA publishers use Creative Commons licenses to ensure that the content of the articles published in their journals are reusable in the widest sense: that is, they can be reproduced, abstracted, "mashed up" with other material to produce new information, mined by text, visual, audio and other data mining tools.

Figure 7 above indicates that 70% of the UiT researchers would like to retain ownership rights of their publications, while only 1% would like it to be given to the publishers. However, almost 15% wished to give the rights to their employing institution.

DISCUSSION

In agreement with the literature (Chilimo, 2016; Hulela, 2010; Lam & Chan, 2007; Moksness, 2018), the results of the survey show that most (93.5%) of the researchers at UiT support OA publication principles, but only half of them are currently submitting to the OA university repository, Munin. Nevertheless, 74.5% of the UiT researchers are willing to archive their final draft in Munin. The researchers' strong agreement to the principles and practices of OA across all age groups and academic disciplines, including the steady increase of documents archived in Munin since its launch in 2006, implies that the output is already there, and what

is required is the identification of solutions to the researchers' concerns for not practising OA publication. Generally, the majority of the UiT researchers indicate concerns because, either they do not know Munin well (60%), or they do not know it at all (12%). As such, marketing the repository to promote the repository is essential (Gierveld, 2006). Sensitising researchers on what, why, who and how they should be self-archiving their research work for open accessibility in Munin is of prime importance to improve the manageability, visibility, accessibility of qualitative scholarly documents in Munin for the growing research community in Norway and worldwide.

The majority of the senior researchers who do not currently publish in OA mentioned that they did not see publishing in OA journals as a priority. They raised concerns that payment for OA publications made it more uneven between researchers who have the funds to pay for APC and those who do not. One researcher said, "publishing in Open Access is not cheap either. It's just another way of payment, because the institutions pay for it instead of the authors themselves." Other researchers criticised OA publication because it tends to discriminate against authors who cannot afford the article processing charges, since not everyone has the support of their institution as is the case for UiT researchers. They also tend to be negative to OA publication because they are ignorant of the UiT financial support for it OA. Early career researchers have, for example, expressed concerns about the difficulties to afford APCs, the fees that are often charged by OA journals to publish research papers. One respondents said, "I'm ambivalent in regard to OA. I embrace the principles, however I think it is difficult as I have done some research without funding and thus might lack finances for open access, and also due to predatory journals." In regard to such concerns, sensitisation about UiT financial support for OA publication should be emphasised and clearly communicated to researchers.

Some UiT researchers have not yet published in OA platforms (institutional repositories or journals) because they think there is not yet enough quality OA journals/archives in their field. For instance, one researcher mentioned, "I would consider publishing (more) in open access journals if the top-ranked journals in my field were open access. Too few good journals or archives are open access!" While others pointed out that until hybrid journals in their field of work become affordable to publish with OA, they would never submit their publications to OA journals. For this reason, it can be argued that few people would choose to publish in available OA journals, such as was the case with Maritime Studies (MAST), which has now gone from an OA model to a hybrid one because they could not afford to maintain their journal as *pure OA*. Another researcher expressed similar concerns by saying,

> *a key thing is missing in this survey, as far as I know there are no pure journals at level 2 (NSD) in my field. Furthermore, the better level 1 journals have also a paper version, and UiT does not fund an open access publication in such paper journals. I seek good journals for my work. If it happens to be open access journal and UiT can pay the fees, then I accept the open access version, otherwise I go for the paper version. What else can I do, pay from my own pocket?*

Nevertheless, unless it is a pure OA journal, UiT does not pay APCs for its researchers to publish in existing hybrid journals because it is currently very expensive. This shows that even UiT does not support the higher fee (APCs). It implies that UiT's current principle of APC support offered to its researchers may last so far as they can afford it.

With the moral pressure on the institution to go OA, one can probably say that it is appropriate for the university library personnel to encourage researchers to publish in pure

OA rather than in hybrid journals. This is mainly because the publishers of hybrid journals demand payment in the form of both subscription and APC. Publishing in affordable pure OA journals, without paying whatever the publisher demands in addition to APC, may be one other way to encourage researchers to make their scholarly work freely accessible. However, it can be argued that to remove this economic problem and make most of the research freely accessible worldwide, joint international efforts among all fields of science are required for the traditional journals to become at least hybrid journals, with affordable APCs that are not more expensive than the journal subscription price.

Despite UiT's publication-support incentives (APC support) and marketing of the repository's principles and practices, both online and physical, the majority of researchers are either not fully knowledgeable or ignorant of Munin and its practicalities, including OA publication. Some UiT researchers still do not know what a *final draft* means, and the importance for archiving it. (A final draft is a document that is allowed to be archived in Munin.) They claim to be unaware that it is the responsibility of the UB personnel to find out about all the practicalities around the legal rights of publishing their articles (either as a final draft or published article itself) after depositing it in the Repository. For instance, one researcher pointed out that:

> *what is the final draft—a word document? A PDF? I have received proofs marked with final corrections, such that it would be a mess to post, and would also be wrong (not contain the right text because it is full of corrections). This is where I have problems with the system. If the draft I post for is just a word document, those using my research will nevertheless have to find the actual journal article to get the right page numbers and the proper citation. What a time-consuming process! This is why I need a course or seminar on what it is we are actually talking about, because this is totally unclear to me.*

Additionally, one respondent, in agreement with Hulela's (2010) findings, argued that, "I do not think we should make open access a burdensome process." It can therefore be argued that some researchers really think archiving their articles in the Munin Repository is cumbersome and time consuming, adding to their workload. This may not be an issue if marketing of the repository and its practicalities reach the targeted recipients well and clear.

Training and skill development of researchers in how to handle, upload, search/browse and download documents in order to make them (researchers) adapt and understand well the Web interface of the repository is required. The message to send across should be able to make the descriptions of the Munin Repository's principles short, clear and simple to understand, so that the researchers instinctively know what they must do and not do. For example, it should be clearly indicated who is responsible for what between the authors (researchers) and the librarians or administrators, when it comes to the process for archiving documents like articles in institutional repositories like The Munin. It should be clearly shown that it is not the researchers' but the librarians' or administrators' responsibility to find out about publication copyright and embargo periods of the deposited articles (Chilimo, 2016; Hulela, 2010; Lam & Chan, 2007). It should be made clear to the researchers as to who is responsible for checking the archiving permission—a point some researchers (17.5%) indicate being ignorant of.

Hulela (2010) noted that copyright concerns required for depositing work to an institutional repository was one of the major deterrents to self-archiving. It was found that 30% did not know about their copyright transfer to the publishing journal when they publish in traditional scholarly journals, and 70% declared reading the copyright transfer policy

before submitting an article to a journal (Figure 6). Nevertheless, even if many UiT researchers would like to retain the ownership rights (70%), traditionally they still lose their rights when publishing in scholarly journals. Less than 50% submit to OA repository The Munin (Table 3) because the majority (70%) of the researchers who read the copyright transfer policy may believe that self-archiving in the repository is copyright infringement, which is not true; since certain traditional journals, including those requiring copyright transfer, allow the authors to self-archive the final draft version of the article in an institutional repository, with or without embargo. In fact, UiT researchers may not be aware that by publishing in OA journals implementing Creative Commons Licenses, authors retain the rest of the rights except for the right to publish their work, which belongs to the publishers. Publishing in OA journals will automatically allow such articles to be made openly available in the Munin Repository immediately upon self-archiving, thereby instantly maximising its accessibility. Hence, such issues are worth bringing forward when promoting the institutional repository and OA publication.

Although the analysis shows that the majority of the PhD students were aware of The Munin Repository, some PhD students did not. Nevertheless, most of the PhD students indicated not to have started archiving in The Munin Repository, especially because they had not yet started publishing, as highlighted in one of their quotations from the survey, "I have just started up as a PhD student and do not have things to publish yet. In the future I would like to make my materials available in Munin." Besides, other PhD students argued that unless The Munin Repository allowed self-archiving monographs, it was not possible to make their work accessible openly in the repository. For instance, one respondent pointed out that, "A few of the questions are answered on basis of what I wish to do when I start publishing. I am currently nearly a year into my PhD, which is not article based but aims towards producing a monograph. Thus, actual publishing is some way off." This shows that The Munin Repository seems to have been rigid in accommodating non-article based PhD monographs. Therefore, apart from what is currently accepted to be publicly accessible through The Munin Repository, the Munin administrators should consider the possibility of expanding the types of academic documents rather than sticking to what is currently been archived for OA. PhD monographs could be self-archived as books, that is, scientific books (reference example, https://eburon.nl/en/).

However, it is worth mentioning that with the new PhD Regulations at UiT, with effect from January 2019, unpublished monographs and parts of dissertation will be made openly available five and two years after the defence respectively. All sections of a dissertation will be made openly available not later than five years after the defence. Such practices may automatically help to speed up and increase the accessibility and visibility of UiT research production worldwide, because the monograph authors have already expressed their willingness to archive their work in The Munin Repository.

While the majority of the PhD students are positive, others are negative towards The Munin Repository and OA principles and practices. They are negative because, among others, an OA publication does not give them the academic reputation they require for future research career security (Smith, 2006). Currently, regardless of the existence of the Declaration on Research Assessment (DORA) since its announcement in 2013, many academics still place importance on publication in international peer reviewed traditional journals than on OA publication (Gaind, 2018; Moher et al., 2018). This is mainly because publication in "brand name" traditional journals can increase their chances of being employed, promoted, gain tenure and securing funding for project proposals (Hammarfelt, 2017; Moher et al., 2018; Quan, Chen, & Shu, 2017).

Herein, the age group of 30-49 years, where most PhD and post-doc researchers belong, seems to be strongly against OA principles (Figure 3). Thus, early career researchers are more reticent towards The Munin Repository and OA principles and practices, as they may not provide publication channels as well-known as some of the larger, more well-established journals in a given field. Unfortunately, the majority of OA journals, based on NSD—the Norwegian Centre for Research Data indexation—are on Level 1 compared to Level 2 that many academics still perceive important for their prestige (Moher et al., 2018). This is a political issue, and unless the system, nationally and internationally, agrees on a solution that will satisfy the involved collaborators (stakeholders), this issue may remain problematic, especially to early career researchers. Despite the readily available international forums committed to accelerating the transition to OA, such as DORA Declaration, OA2020, openAIRE, and OPERAS, some UiT researchers seem to be reticent towards OA. According to them, a collaborative debate across nations about OA needs to be prioritised and addressed at an international level. To efficiently address the key issues, the debate should involve active participation of all stakeholders, such as policy-makers, funders, publishers and universities, including researchers themselves and librarians and administrators. The UiT researchers clearly indicate that unless such a debate forum can come up with tangible international agreements that transparently show how researchers should behave with respect to OA publication and quality evaluation, they will continue publishing in traditional journals as currently practised in order to secure jobs and their research prestige. For instance, one of the respondents pointed out that:

> *The debate in Norway about open access is highly problematic and I've never seen the key issues addressed. Universities push researchers in front of them making nice statements about open access OA sometimes even adding that this is somehow the researchers' responsibility; and on the other hand, the very same universities together with various funding bodies want publications in well-regarded journals and publishing houses that, needless to say do not give away their publications for free. Open Access journals are not an alternative. Until universities show some sensitivity towards how everyday life for researchers looks and the world of publication works, I see no reason to pay much heed to this debate.*

Another researcher indicated that:

> *Preprint storage is only a temporary solution. What we need is for universities and policy makers to prioritise open access (especially without APC). Just take a look at how many non-APC OA outlets are at level 2 (in my field, there are none at all). And it is SO DIFFICULT to get new OA outlets into the NSD database because of their "two-year" rule, and because they don't recognise alternative methods of peer review or payment, for example, view online for free, pay what you can to download - NSD put a VERY well-respected academic publisher at level 0, and I can only think it is because of that). So, making researchers aware is only one third of the solution - and I am very pro-OA but know nothing about Munin! - the other thirds are lobbying and financially supporting.*

Thus, unless the above key issues about OA, which include among others, how to evaluate research quality and solve the APCs' challenges, are addressed with a transdisciplinary approach at an international level, UiT researchers may choose not to publish in OA.

Perhaps during OA training sessions, UiT researchers can be informed about the existing OA forums that already work with key problematic issues of OA, especially about

the DORA Declaration which UiT signed in 2016, after which the Research Council followed suit in 2018 by adding the declaration principles as the premise for its work. This may inspire more UiT researchers to start publishing open access, because currently most of the UiT researchers seem to be ignorant of the existence of international OA forums and their appropriate principles.
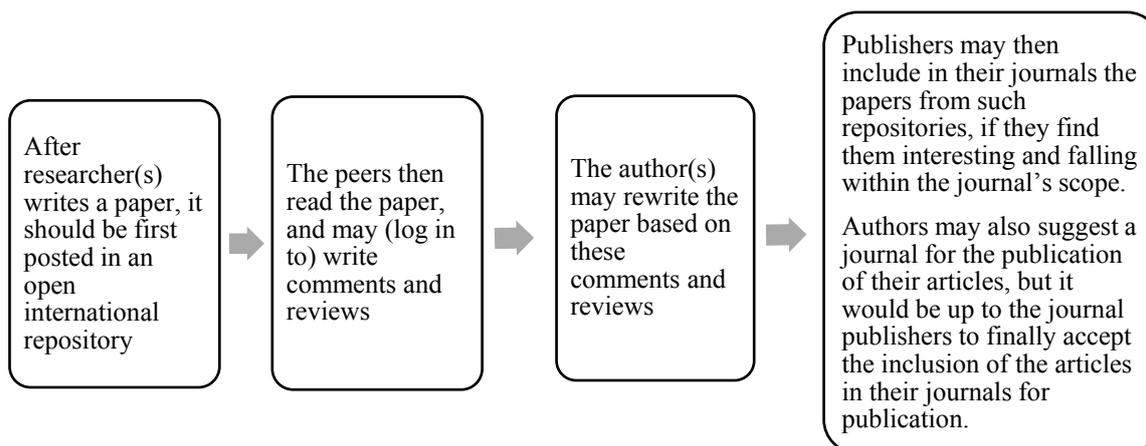
Besides, some UiT researchers are sceptical of OA publication because of lack of quality assurance. One researcher expressed that "there is no quality assurance for OA publication, partly due to predator journals and lack of peer review, as such I am sceptic or against OA publication". Pertaining to the same issue, other researchers pointed out that, "diffusion of knowledge and scientific critique is the essence of scientific conduct; and open access publishing greatly favors this essence, in the same way that open source software such as R do." As such, the discussion herein would not be complete without touching on the debate on how accessibility to qualitative research can be assured in OA publication, especially considering that some researchers choose not to deposit or publish their articles in institutional repositories and OA journals, because they think such platforms lack peer review quality assurance.

Quality assurance for open access publication seems to be another interesting debate among academic scholars in the past two decades. Other scientists are therefore sceptical or against open access publication. It is argued that gold OA publishers earn money in a variety of business models at the expense of the quality of peer review. As such, recent controversies suggest substandard peer review in OA (Wicherts, 2016). But the question is, does the practice of peer review really work as it is supposed to do?

Evidence shows that the peer review process is until now opaque and its effects are based on faith rather than facts (Jefferson, Alderson, Wager, & Davidoff, 2002; Smith, 2006). This is the trend for both OA and non-OA (traditional) peer review journals. Moreover, as peer review seems to be so opaque, one cannot easily prove this. It is impossible to even define peer review in operational terms (Smith, 2006). Nevertheless, peer review is similar to democracy—a system full of problems but the lesser evil when dealing with prioritisation of grant applications or articles by a third party who is neither the author nor the person making a judgement on whether a grant should be given or an article published (Smith, 2006). This implies that peer review is important for detecting errors or fraud, thereby useful for reliability and quality assurance of the published articles or funded research-proposals. As such, some UiT researchers indicate that incorporating a new and reliable peer review model for all publication channels, be it journals or institutional/central repositories (such as The Munin and PubMed) can secure the assurance of OA qualitative research publications, possibly resulting in more authors archiving in The Munin Repository.

However, at the moment, embedding peer review in repositories is difficult, unless the traditional peer review changes to a new and sufficiently consolidated peer review model at an international level. Traditionally, peer review is a process organised by journals (at the journal level) and directly connected to the journal's publishing procedures. However, for peer review to remain sustainable in an era of ever growing scientific output, a current idea from academic circles is to disconnect the traditional review process, and move from a journal level to an international coordinated model. Based on the new paradigm of peer review (Newton, 2017), Figures 8 outlines one suggested peer review model that may work with international coordination.

Therefore, journals would become the overlaying service on top of such open repositories. The journals' mission would be to bond or tie together articles within the same topic, and help spread awareness of the articles they include. For instance, The Munin

After researcher(s) writes a paper, it should be first posted in an open international repository	The peers then read the paper, and may (log in to) write comments and reviews	The author(s) may rewrite the paper based on these comments and reviews	Publishers may then include in their journals the papers from such repositories, if they find them interesting and falling within the journal's scope. Authors may also suggest a journal for the publication of their articles, but it would be up to the journal publishers to finally accept the inclusion of the articles in their journals for publication.

Figure 8. Peer review model recommended herein

Repository could be responsible for supplying manuscripts from UiT authors to the open international repository pool for the peer review process, as indicated in the model in Figure 8. Such a model makes it possible for academic repositories to embrace a more reliable peer review process on top of being an open academic repository. The model allows the base of peer reviewers to become transparent, and as global and diverse as the pool of scientists publishing their work. This may contribute to improving the quality and accessibility of researchers' work that is openly published for use globally, while assuring the inclusion of all scholarly articles in institutional repositories such as The Munin Repository. This may make the scientific production globally accessible to society (Ferreras-Fernández, García-Peñalvo, & Merlo-Vega, 2015). The model may be of help in inspiring those who currently are sceptical to OA principles due to lack of peer review.

This study's limitation is especially because of being carried out at one institution, UiT. However, the 200 respondents were representative of the researchers at UiT, and no included respondent missed out answering the questions in the questionnaire (i.e. no incomplete questionnaires). In general, the study has shed more light on why researchers (perhaps unknowingly) tend not to systematically archive their research in their institution's repository. The statistics in this study can be used as benchmarks for administrators to use in comparison with their own institutions' repository.

A follow-up study is recommended after five to ten years to see if the lessons learnt from this study will have helped to improve self-archiving in The Munin Repository.

CONCLUSION

Based on a questionnaire survey of researchers' attitudes and practices at the UiT The Arctic University of Norway regarding opern access (OA) of research articles, it is clear that the researchers are not well conversant with practices towards OA publication. Despite the fact that the researchers show keen interest in publishing OA, the majority do not practise self-archiving in The Munin Repository and or publish openly. This indicates that to improve the manageability, visibility and accessibility to qualitative scholarly documents in institutional repositories like The Munin Repository, there is need for more training of researchers to promote awareness of OA principles and practices. This can be conducted through courses, seminars, workshops and other channels as indicated in the Discussion Section above. But

more so, the universty library should ensure that information on how to publish and access documents in the repository is made available at the Library Information Desk.

Besides, sensitization across the network of researchers is required to promote a movement such as DORA, as far too many researchers at UiT (and probably around the world) have not heard of it. Despite the DORA Declaration in 2013, researchers in some nations including China are still being incentivised financially to publish in high-impact-factor journals (Boavida, 2015). It may help if national and international forums such as DORA, OA2020, openAIRE and OPERAS can work together to consolidate the movements for OA principles, and come up with tangible common international agreements that transparently show how researchers should behave with respect to OA publication and quality evaluation.

In addition, the OA policy in Norway needs to be further strengthened by including individual researchers' views from the bottom up. The system should involve active and effective stakeholder participation and collaboration at all levels to address key problematic issues and challenges involved in OA publications. In so doing, OA principles are encouraged, but may also act as a means through which the quality of research is enhanced. This could also encourage and support the Norwegian Research Council and the European Union's Horizon 2020 current projects, where research funding comes with strict rules to secure free sharing of research results and OA. As Msomphora (2016) noted, OA allows research results to be transparent, meaning that secrecy is avoided in order to permit criticism of the knowledge produced. Moreover, it enhances global availability of quality knowledge, even in developing countries, and taxpayers are able to get value for money. More so, the different ways of marketing the repository, including measures for training and skill development of researchers to increase self-archiving in repositories, will help to remove barriers to self-archiving in institutional repositories, and contribute towards improving the open accessibilty to qualitative document sets for the growing research community in Norway and worldwide.

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CONFLICT OF INTEREST

The author declares that she has no competing interests in relation to this manuscript and that there are no financial or financially competing interests to declare.

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APPENDIX. SURVEY QUESTIONS AS PRESENTED TO THE SURVEY RESPONDENTS

BACKGROUND INFORMATION

1. Your age group
   - ☐ Under 30
   - ☐ 30-39
   - ☐ 40-49
   - ☐ 50-59
   - ☐ 60 and over

2. Where are you in your research career?
   - ☐ Less than 5 years experience
   - ☐ 5-15 years experience
   - ☐ 16 or more years experience

3. What faculty are you in?
   - ☐ Faculty of Biosciences, Fisheries and Economics
   - ☐ Faculty of Humanities, Social Sciences and Education
   - ☐ Faculty of Sports, Tourism and Social Work
   - ☐ Faculty of Engineering Science and Technology
   - ☐ Faculty of Science and Technology
   - ☐ Faculty of Health Sciences
   - ☐ Faculty of Law
   - ☐ Faculty of Fine Arts

☐ Social Education

4. Your working position:_____

OPEN ACCESS PUBLISHING
Open Access publishing allows access to scholarly publications via the Internet in such a way that the material is free for all to read, and to use (or reuse) to various extents.

5. How do you feel about the principles of Open Access?
   ☐ Strongly in favour
   ☐ Mildly in favour
   ☐ Mildly against
   ☐ Strongly against
   ☐ Don't know

6. Are you seeking to publish in Open Access journals?
   ☐ Yes
   ☐ No
   ☐ I do not consider that as a criterion

7. Do you usually know whether the funding body of your research requires or recommends open access archiving of their funded research?
   ☐ Yes
   ☐ No

UNIVERSITY'S DIGITAL ARCHIVE
Many universities have set up open publication archives for their researchers. The aim of these kind of institutional repositories is to add visibility and accessibility of the research. In the UiT The Arctic University of Norway this repository is called Munin. The University urges researchers to use Munin archive and save the articles to be openly available. Articles are delivered to Munin via CRISTin (Current Research Information System in Norway).

8. How do you feel about using Open Access repositories?
   ☐ Strongly in favour
   ☐ Mildly in favour
   ☐ Mildly against
   ☐ Strongly against
   ☐ Don't know

9. Do you know about the Digital Archive of the UiT The Arctic University of Norway (Munin)?
       [if no, please go directly to question 11]
   ☐ I know it well
   ☐ I know something about it
   ☐ I don't know it at all

10. (If yes,) Do you currently make any of your publications available in the Repository?
       [If yes please go directly to question 13]
   ☐ Yes
   ☐ No

11. If you (do know Munin, but) are not currently making material available in it, why not?
    (You may choose several alternatives.)

☐ I don't know how to do it

☐ I'm not sure if it's permitted according to the publishing contract

☐ I don't have the permission from the other authors

☐ It's too much trouble

☐ I don't want to put my publications in to Munin

☐ Other reason
Do you want to specify?_____

12. Do you make your publications available other ways, for example, in a subject-based repository, such as the arXiv.org repository, personal website, other free text? [If no, please go directly to question 13]

☐ Yes

☐ No

13. If so, what other ways do you use?

☐ Subject-based repository

☐ Personal website

☐ Other channel
Do you want to specify?_____

14. Do you usually read the copyright transfer policy you sign before submitting an article journal?

☐ Yes

☐ No

15. Who do you think "should" own the copyright of research publications?

☐ Author/s

☐ Employing institution

☐ Primary Funder

☐ Publisher

☐ Someone else

☐ I don't know

16. In the process of producing a journal article for publication, do you keep your own copy of the manuscript, the version called final draft? This is a version identical to the published version in all other respects except for the final layout.

☐ Yes

☐ No

17. Would it be acceptable to you that this kind of 'final draft' is held in the Repository, if the publisher's permission has been checked for you and is OK?

☐ Yes

☐ No

☐ I don't know

FEEDBACK OR COMMENTS (FREE TEXT) _____