To Share Or Not To Share: An Insight Into An Academic Community Of Practice*

Aisling Dundon
[†]
Yvonne Diggins[†]

Chris Exton[‡]

[†]University of Limerick

Abstract

The concept of an open repository of learning resources provides many benefits in theory to the academic community, however, the acceptance and willingness to actively contribute in practice proves to be slow. This study examines the use and perception of a national open repository of teaching and learning resources, namely the National Digital Learning Resources service, amongst a community of computer science academics spread over twenty-one higher education institutions. The methodology chosen for this study used both a qualitative and quantitative approach including an online questionnaire and individual unstructured interview sessions. The aims of this study were twofold; to uncover any reservations and concerns felt within the academic community in Ireland, towards contributing resources to an open repository; and to note what incentives would encourage them to participate and contribute to the repository.

Keywords: Communities of Practice, repositories, learning objects, learning resources, rewards for academics, OER, motivational factors of academics.

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1. Introduction

The National Digital Learning Resources service (NDLR) is an online service in Ireland, which supports the collaboration and sharing of open teaching and learning resources (www.ndlr.ie). The NDLR is a national service funded by the Higher Education Authority (HEA) and partnered with all HEA funded Universities and Institutes of Technology in Ireland. For the purpose of this study a Learning Repository: enables the storage, discovery and retrieval of learning materials and their descriptions, from local or distributed sources. (www.jorum.ac.uk). The NDLR provides funding opportunities to higher education institutions and academics to develop open education resources in two ways; local funding (individual institutions for small-medium scale projects) and national funding (two institutions or more collaborating on large scale projects).

The NDLR identified a need to develop an open learning repository relevant to the higher education institutions in Ireland. Resource inaccessibility, inefficiency in strategy of commercially produced content and the absence of support for academic communities were some of the driving factors behind the service.

To generate awareness and to help deliver this service the NDLR established a number of 'Communities of Practice' based on common subject areas, these communities of practice were formed either from existing networks or were specifically established to support the development of the repository (McAvinia and Maguire 2011). In the context of the NDLR, communities of practice are 'groups of people who come together to learn from one another face-to-face and virtually' (Hubert, Newhouse & Vestal 2001) and involve people jointly developing a shared collection of resources to support work in a specific field (Van Winkelen 2003). In this way the NDLR communities of practice bring together the three elements which Garrison et al (2000 p. 87) affirm to be essential to an education transaction in a community – 'cognitive presence, social presence and teaching presence.' The NDLR encourages the academic communities to come together to exchange ideas on best practice in teaching and learning, collaborate on projects and provides a support network through which challenges can be shared and solutions suggested.

Communities of Practice are generally informal groups of volunteers sharing knowledge based on relationships within the group; therefore, membership involves an emotional as well as intellectual component (Van Winkelen & Ramsell 2003). There are many contributing factors in creating a successful community of practice, but none more important than that of trust and openness (Ardichvili, Page, & Wentlin 2003). This is an important point as the success of the NDLR or any shared community repository depends on the motivations of its members to actively participate in the sharing and contribution of knowledge within the community.

This study concentrates on the actions of academics within the Irish Computer Science Community of Practice (CSCoP) http://www.ndlr.ie/view/view.php?id=93 specifically in relation to their incentives and reservations towards sharing and contributing resources in the NDLR. The intention of this study was to uncover some of the motivating factors and also the barriers

towards participation. The CSCoP currently has 190 colleagues comprising academics across all universities and institutions in Ireland.

2. Background

According to Etienne Wenger 'communities of practice are groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly.' Wenger states that there are three key characteristics of a Community of Practice (CoP), namely domain, community and practice. The domain is an important element of a CoP as it provides the reason and activity for the community and draws people into the CoP. The community characteristic is crucial as this enables the collective sharing and exchange of information and experience. Finally the practice element is important for a CoP as the practice of the common interest of the community provides the material for sharing and learning with the members.

For a community of practice to thrive it needs both the contribution of knowledge and the demand for it. If the community cannot sense a real need for knowledge sharing then without the demand there is little or no supply. To stimulate knowledge sharing and exchange the community first needs to identify the common demands – what is the community interested in discussing and learning more about?

Wenger (1998) noted in a study of communities of practice that problem solving invokes the sharing of knowledge within a community. Problem-solving creates a sense of purpose and if the problem is solved then feelings of satisfaction and achievement are attained. Participating in problem-solving exchanges can be a real motivating factor to some people as it can have indirect benefits such as increasing their status amongst their peers, sharpening their problem-solving skills and validating their level of expertise.

There are many reasons why people share knowledge within communities of practice. However, research would suggest that one characteristic is central to participation and that is having a sense of community spirit (McLure & Faraj 2000). People who have an innate sense of community spirit are intrinsically motivated to share knowledge for the good of the community drawing satisfaction from helping others and a feeling of belonging to a community.

In a study conducted by Ardichvili et al 2003 they found that the majority of employees interviewed were willing to contribute their knowledge to virtual knowledge-sharing communities of practice because they viewed their knowledge as a 'public good', which should be made available for the benefit of the whole community. The overarching motivational factor found here was a sense of community interest and moral obligation to improve the knowledge base and practice element within the community, supporting previous studies undertaken in this area by McLure and Faraj 2000. It is also important to note that participants of this study emphasised the organisations culture, which encouraged mutually supportive relationships between employees. Recognition and support of this knowledge exchange from their organisation gave the community-minded employees the opportunity and the space in which to participate.

Winkelen and Ramsell 2003 also note their findings of the varying reasons why people share knowledge within communities of practice, for example:

- Intellectual Reasons – to improve their status, develop expertise, increase influence
- Emotional Reasons – gain satisfaction from helping others, peer recognition, increase confidence
- As a means to an end – sharing in order to receive something they need or want for example, improved pay and benefits.

Conversely, there are many reasons why people do not share knowledge. For example, if knowledge is perceived as 'an individual's private asset and competitive advantage' then people are less likely to want to share their knowledge 'unless provided with tangible returns such as promotions, bonuses … or intangible returns such as reputation and status' (McLure & Faraj 2000). People who are more extrinsically motivated want to know what they would get in exchange for their knowledge and need to feel the returns match the effort. In an environment where knowledge sharing is not recognised or rewarded people of this mind set would not be motivated or encouraged to participate in knowledge sharing activities. In a study conducted by (Meyer and Evans 2005) they claim that competition for ratings between institutions may discourage collegial relationships and collaborative research among scholars within disciplines across institutions. If the culture of the institution is not supportive of knowledge sharing this will be a strong influencing factor on the academic employed by the institute. This point is also reflected in an evaluation of some Irish academic communities of practice (McAvinia and Maguire 2011 p 00039.9) as it was found that 'there was an absence of sharing within or between institutions'. One interviewee in the McAvinia and Maguire study believes

> The culture within institutions is quite guarded (…) there doesn't seem to be the ethos of sharing even within a department never mind inter-institutionally kind of thing. So there are huge barriers there that need to be addressed and they are cultural barriers that I can see, so it is not something that can turn around in a short time. "

Other reasons why people are reluctant to share knowledge within a community of practice can stem from fear of criticism or 'losing face' amongst their peers. Exposing their lack of knowledge or contributing incorrect information can also hinder knowledge sharing. Considering, especially in the academic world, your professed level of knowledge and expertise can have a direct effect on your perceived standing or status amongst your peers, those who are unsure of their level of expertise may wish to keep guarded in order to protect their reputations. In a recent evaluation of activities within the NDLR communities of practice it was suggested that emerging communities might need to first form as a group through face to face networking to establish a basic level of trust before sharing their teaching material (McAvinia and Maguire 2011).

Time is also a significant factor in deterring people from knowledge sharing. If the system used to contribute information and share knowledge is difficult and time-consuming to use people would be less likely to engage in the activity (Archichvili et al 2003).

The influencing factors on knowledge sharing within communities of practice, noted in previous studies, span social, cultural and technical considerations of which many are supported by the CSCoP and reflected in this study.

3. An Overview Of The CSCOP

A key goal of the NDLR service is to support greater collaboration in developing and sharing open educational teaching and learning resources and associated teaching experiences across all subject disciplines and communities of academics and to promote good practice use and re-use of existing resources (Jennings 2010). By being empowered by the support of the NDLR online communities, academics and staff from different disciplines can share effort and expertise, as they raise the bar collectively for how they support their students' learning, embed research in their teaching and potentially embracing partnerships with research and industry, both in Ireland and Internationally (NDLR 2011 a).

The NDLR community portal, which was developed using Mahara open source software, uses innovative social networking tools to enable academics to communicate and collaborate with each other. Currently, over thirty NDLR communities of practice are active, resulting in the development and harvesting through the Open Archives Initiative Protocol for Metadata Harvesting (from Jorum) of over 25,000 open educational resources. The NDLR's online CSCOP has successfully developed and harvested over 1,600 open educational resources.

In 2009, the CSCOP successfully secured NDLR national funding to develop a suite of reusable learning objects for three national funded projects; 'short videos of Data Mining and Business Intelligence topics'; 'Scratch, Robocode, C#, Java, Computing for Science'; 'The design and development of a set of SCORM-compliant Learning Objects on the topic of methods in Java programming'.

The CSCOP actively uses the following social networking features to collaborate and communicate with community members. The CSCOP set up an online 'Group Web Page', which outlines what the group is about, links to their reusable learning objects outputs, along with member's research interests (see Figure 1). The CSCOP also has an online 'Member Listing' area, which enables members to view who is a member of the group with the facility to contact members with items of interest for example possible funding opportunities or collaborations.

Figure 1: CSCOP Group Web Page (NDLR 2011 b)

The 'Forums' area is actively used by members, an example of popular forums would be 'News and Events'; 'Funding Opportunities'; 'Learning Resources Swap Shop'; 'Collaboration Room'. Members can subscribe to forums and receive updates when new posts are submitted. Members can also set up and edit multiple 'WebPages' for their community area and can add content and hyperlinks to resources and articles of interest for the community or embed videos from the 'NDLR Vimeo Channel', which currently hosts over two hundred and eighty videos developed by higher education academics in Ireland.

Members can also 'upload and share files' with other members who can view the files or learning resources and comment on them and can embed widgets, for example 'Google Docs' and 'Google calendar'. The CSCOP also has a 'Group Tweets' facility, where members can post timely tweets about items of interest, for example funding opportunities or events, which go to the NDLR twitter page are also visible within the community 'Group Tweets' area. The NDLR also uses a Facebook© and Twitter® pages as mediums of communication, along with an active Blog and RSS feed.

4. Methodology

The methodology chosen for this study used both a qualitative and quantitative approach including an online questionnaire and individual interview sessions. The questionnaire comprised both open and closed format questions with ranked responses based on the Likert scale.

The survey was created online with invitations to participate circulated in emails to not only the members of the CSCoP but also to other academics involved in teaching computer science. Controls were included on the survey to ensure only one response was allowed per computer to avoid distortion of results. The survey requested some background information on the

participants to understand whether they were teaching academics and to find out at what University/ Institution they were employed. In addition, the survey was developed to collect academics views on and experience of using shared repositories. The primary issues covered by the survey included:

- Experience of using shared repositories in general
- Primary incentives in using repositories
- Main deterrents in using repositories
- Views on quality management
- Question of reward in connection with participation
- Most beneficial types of learning resources

To complement the survey, a number of individual interview sessions were conducted to acquire more qualitative information. The interviews attempted to understand and document in more depth the various reasons for using or not using learning resources from the repository and what issues they had, if any, in relation to contributing resources to the repository.

A common set of questions were used during all the interviews providing consistency of approach and measurability. Open-ended questions allowed interviewees to expand on their responses facilitating a free flowing conversation. The questions posed in the questionnaire were derived from informal conversations with computer science academics, discussions with other community of practice coordinators and influenced by recent research. In all, five academics from five of the Universities and Institutions were approached and agreed to take part in the study. All interviews were recorded for the purposes of analysis. The results of the interview sessions helped to interpret and support the results received from the online survey.

5. Findings

An invitation to participate in the questionnaire was circulated via email to approximately 495 computer science academics in each of the 14 Institutes of Technology and the 7 Universities in Ireland. Participation in the survey was voluntary with a total of 52 academics completing the online questionnaire providing a response rate of just over 10% of the total target group.

5.1 Profile of the CSCoP academic

The majority of academics who responded to the questionnaire were between the ages of 31 and 40 years and were teaching academics. When asked what year levels they taught the spread was fairly equal among all years (see table 1) from 1st year to masters level.

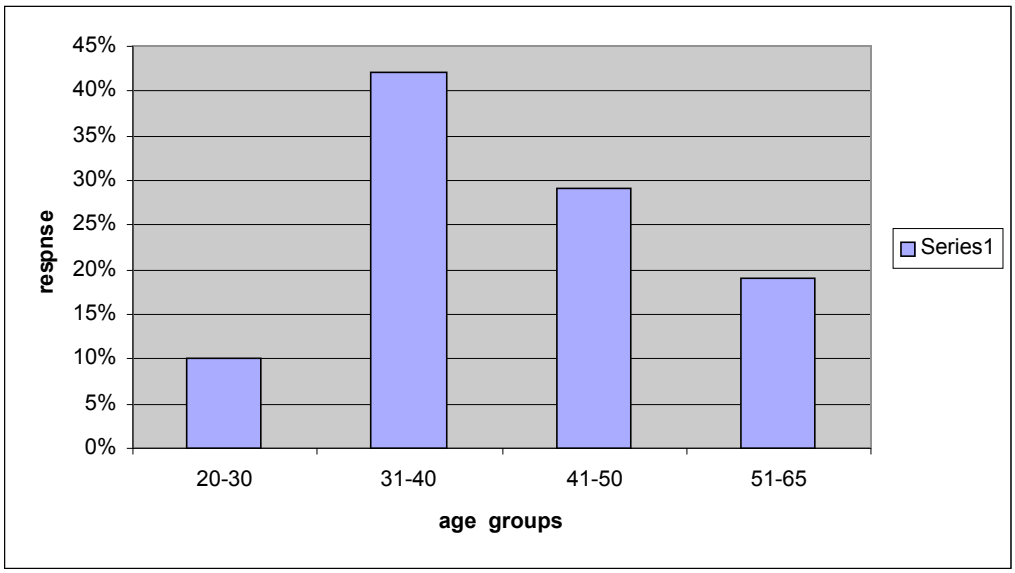

Table 1. Profile of the CSCoP academic

5.2 Experience of using shared repositories in general

When asked the question 'Would you ever use a shared repository?' a clear majority 96% of the respondents answered positively, however, only 33% of them had ever used one before. This suggests that while academics are open to the concept of using a repository the majority 67% are not yet motivated enough to actively search for a repository of relevance.

This same view was echoed during many of the interview sessions with one interviewee stating 'If I need course notes for a new module I'll ask the other lecturers I work with rather than search through a repository' and another stating 'MIT (Massachusetts Institute of Technology) website provides high quality courseware and notes if I need to look for any new material that's where I start looking'. It would seem that a clear driving factor is needed to give academics a reason to use a shared repository as a source for learning resources.

5.3 Primary benefits and incentives in using repositories

In an effort to uncover some of the motivating factors that may encourage more use of repositories the respondents we asked to rate in order of preference what they believed to be a) the main benefits of a shared repository and b) the main incentives for contributing to a shared repository.

Tables 2 and 3 below, illustrate the importance of time saving as a perceived benefit of using a repository and community spirit in terms of the primary incentive for people to contribute.

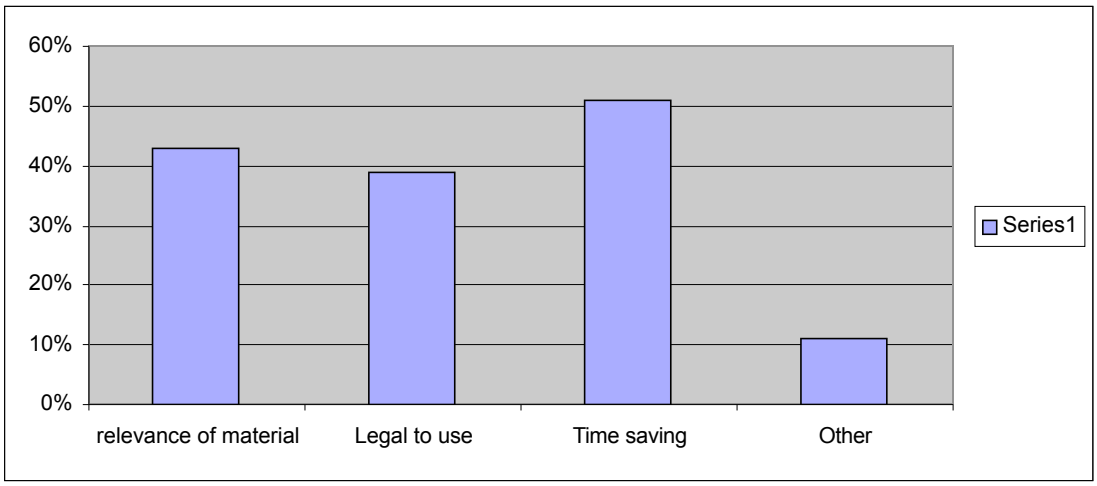

Table 2. Primary benefits in using a shared repository

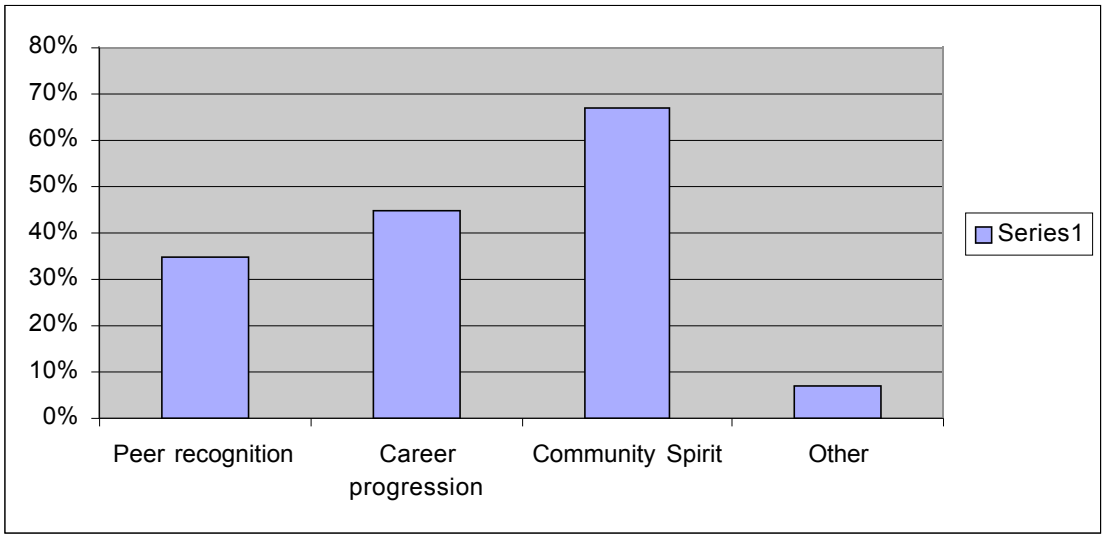

Table 3. Primary incentives in using a shared repository.

5.4 Main deterrents in using repositories

In contrast to the previous questions, this question attempted to uncover some of the potential deterrents for using or contributing to a repository; Please rate in order of preference what you believe are the main deterrents for contributing to a shared repository.

The deterrents presented on the questionnaire were drawn from conversations had with members of the CSCoP, an option was also included to allow additional deterrents to be listed. Table 4 presents the primary deterrents as perceived by the questionnaire participants.

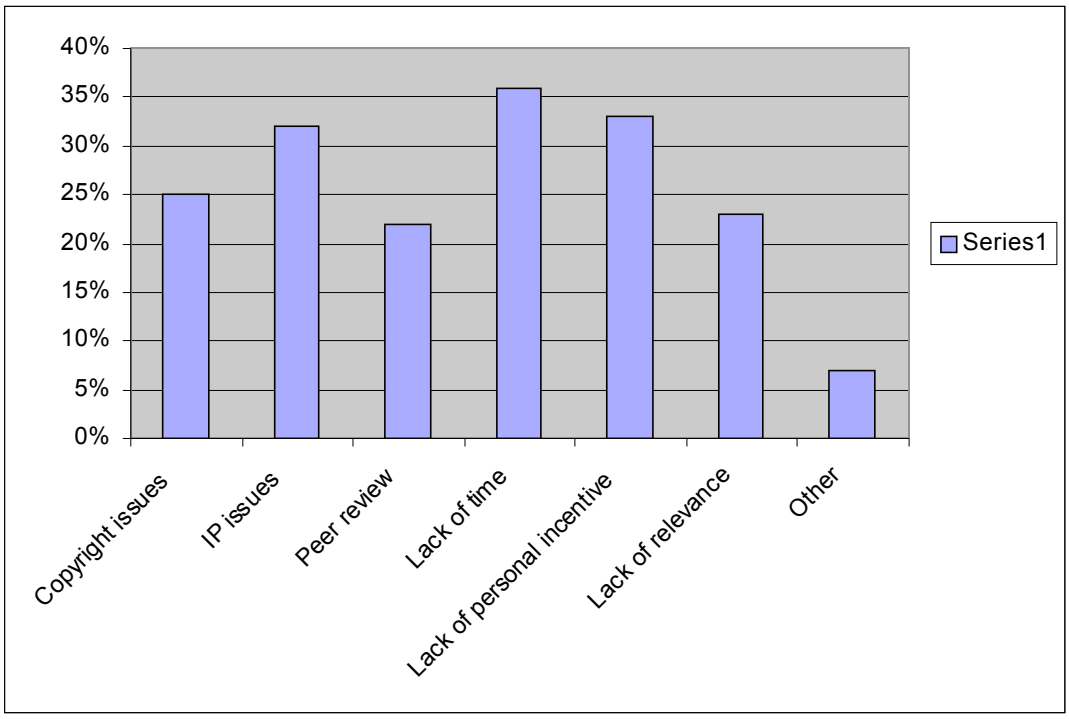

Table 4. Main deterrents in using a shared repository.

5.5 Views on quality management

Arguments for and against the introduction of a quality management process have been debated among users and contributors of the NDLR. The following question attempts to find the position of the CSCoP member.

In your opinion should learning objects in a shared repository undergo a quality assurance process?

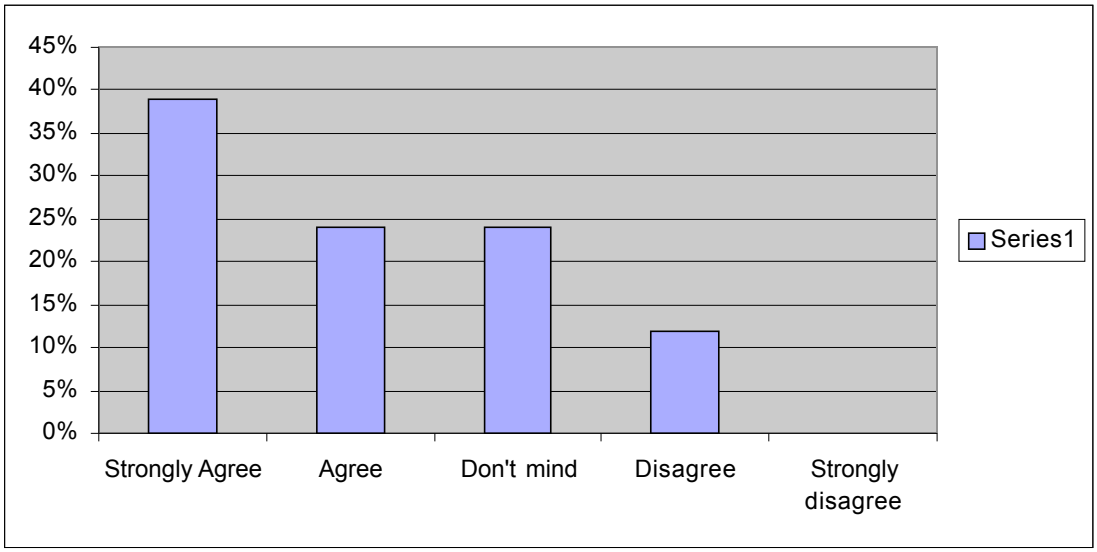

Table 5. Views on repository quality management

5.6 Question of reward in connection with participation

The first question posed in the questionnaire in relation to reward was:

> 'In your opinion should there be a mechanism for peer reviewing of learning resources that is tied into recognition leading to promotion?'

The results in Table 6 show the community to be largely in favour or ambivalent towards the introduction of peer review that is tied into promotion. This suggests that perhaps more work is needed to define the peer review mechanism as there are many unknown variables that could influence the decision making of the community.

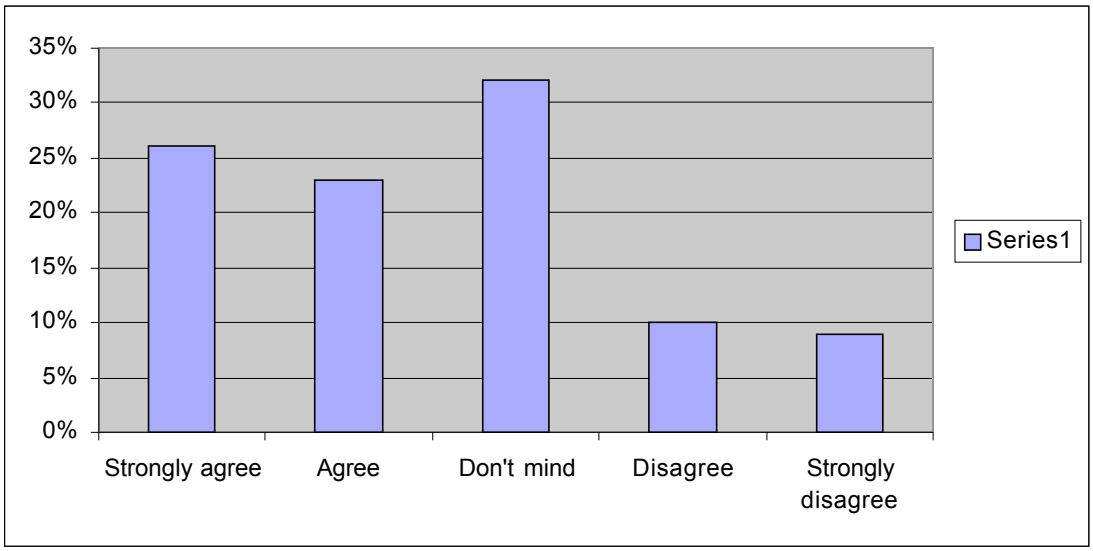

Table 6. Views on peer reviewing of learning resources.

The second question relating to reward was:

> 'In your opinion is institutional recognition of the value of developing and sharing learning resources central to participation?

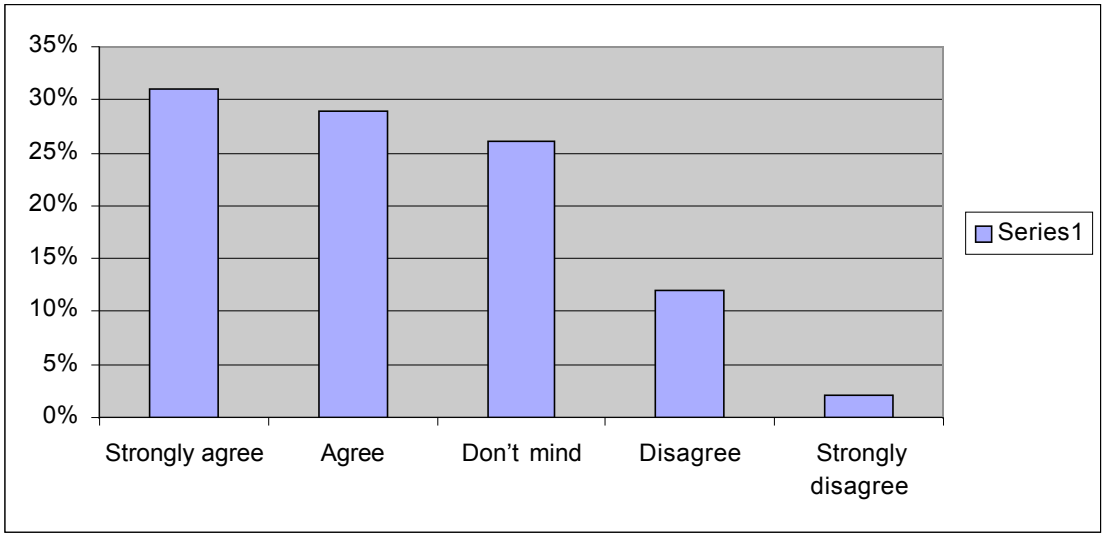

Table 7. Views on institutional recognition of the value of developing learning resources.

The final question relating to reward was;

> 'Are you in favour of developing a reward system for the development and use of learning objects that parallels the reward system for research?'

The chart below shows a noteworthy support for the development of a reward system, suggesting that by introducing a reward system that paralleled that of research, more academics would be encouraged to participate in teaching and learning activities, such as using and contributing to shared repositories.

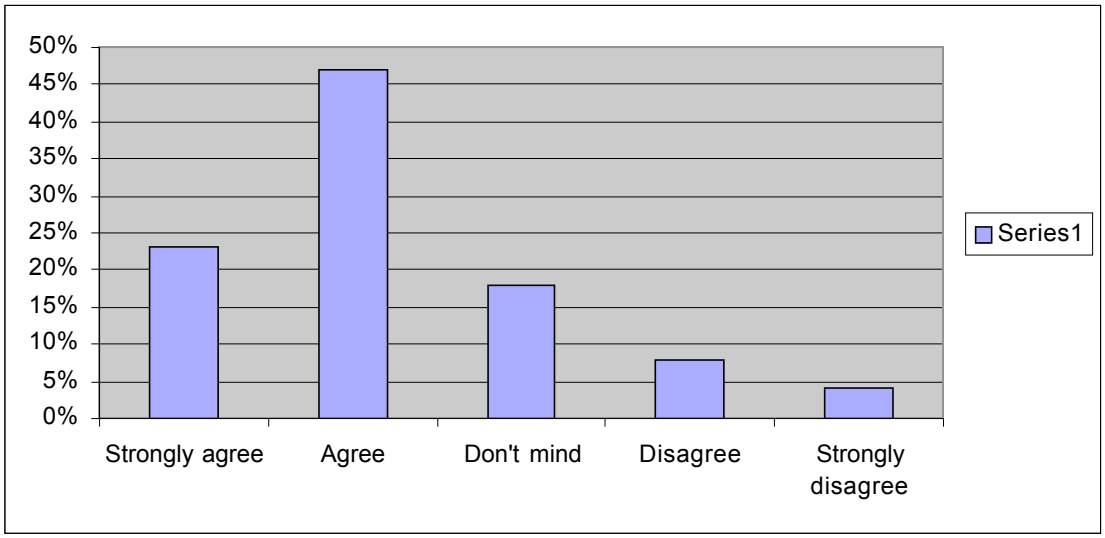

Table 8. Views on introduction of reward system that parallels research

5.7 Most beneficial types of learning resources

A question relating to the types of learning resources most wanted in the repository was included in the questionnaire to help focus attention on these types of resources. By populating the repository with the most relevant and desired types of resources increases the likelihood of use.

The highest rating types of learning resources that would be most beneficial in a shared repository were in order of preference:

1. Course Notes
2. A shell such as a template of a learning design
3. Exam questions

Other types of learning resources listed by the respondents included:

1. 'Computer programs with a set of exercises based around correcting/extending/and testing the programs'
2. 'Project work, tutorials'
3. 'Flash animation'

A suggestion was made during the course of an interview about the possibility of the community coming together to develop some case studies that could then be deposited in the repository for all to share. This is an interesting concept as it brings together the idea of problem solving giving academics a reason to collaborate and work together, and at the same time create learning resources for the repository.

6. Discussion

The findings of this initial survey has helped to uncover some of the incentives and reservations felt by the NDLR computer science academic community in Ireland, with regards to using and contributing to an open repository of teaching and learning resources.

6.1 Benefits and Incentives

The highest rated perceived benefit of a shared repository was identified as being 'time saving' to the academic. A repository of teaching and learning resources that can be reused and repurposed, is perceived to provide a means of reducing the amount of time that an academic spends on preparing course notes and support material. However, in order to realise this time saving benefit the relevance of the resources in the repository is also rated very highly as illustrated in the chart below. If the resource needs to be modified significantly it reduces the time saving benefit.

A repository that is legal to use also rated strongly as a benefit indicating the importance of legal considerations. Other benefits documented by the respondents of the online questionnaire included:

- 'Neatly fill in a Gap in a course'
- 'Find our how others approach subject matter'
- 'To self educate about a topic'
- To view or find 'innovative ideas'
- 'To get new ideas and approaches'
- 'Reusable in different contexts'
- 'Quality of materials'
- 'In my opinion a shared repository is a way a gathering similar types of materials in one location….It is a great way of building a virtual open collaborative community around a particular subject area'
- 'I would expect that it could enhance some of the material I deliver due to the collaborative nature of the material'.

In addition to the benefits question, the respondent were asked to select from a predefined list and in order of preference what they thought would be the primary incentives of using and contributing to a shared repository the list also included an option to add alternatives. The highest rating incentive for contributing to a shared repository, highlighted from the results, was 'Community Spirit' validating the work of (McLure and Faraj 2000). This thought was supported and communicated during the interview sessions as well with one interviewee stating - 'people are so busy preparing for class and teaching that only community minded people would take the time to contribute to the repository'. Clearly, it is believed that being a community minded individual strongly encourages interest and use of shared repositories. One could surmise then that nurturing this quality in institutions through collaborative work could help to strengthen participation in shared repositories.

Career progression was also acknowledged as having an influence on participation, in terms of recognition for contributions made to and/or use of shared repositories. In line with this thinking, peer recognition also rated highly suggesting a certain need for academics within the NDLR CSCoP to establish themselves as authorities in their discipline.

Other incentives documented by the respondents of the online questionnaire included:

- 'To maximise the benefits from the work put into creating learning resources'
- 'A belief that publicly funded academics have an obligation to build up a set of publicly available teaching and learning materials to improve education for all in the country.'
- 'Peer discussion'
- 'Help to improve teaching practices'

- ‘Avoidance of duplicate work’
- ‘It should be easy to deposit things into the repository, barrier to entry should be very very low’
- ‘More effective, efficient and economic!’

7. Deterrents

Considering the apparent reluctance by the CSCoP towards contributing or using shared repositories the questionnaire attempted to uncover the deterrents preventing people from engaging with shared repositories. The highest rated deterrent by the respondents was ‘lack of time’. This in itself is quite ironic as the highest rating benefit of using a repository was that it was ‘time saving’. One interviewee stated ‘with the amount of teaching time we have scheduled on top of administration responsibilities, meetings etc it’s quicker to just ask one of your peers for any course material they have’. This suggests that sufficient motivation is absent as people will often make time to do things when suitably motivated.

Equally rated deterrents for contributing or using shared repositories were a) lack of personal incentive and b) IP issues. It would seem that people need to know what they will gain from using a repository, if time is a scarce commodity in short supply then it needs to be rationed out to the highest priority items on the ‘to do’ list and currently using shared repositories in many cases is just not making the list.

With regards to the IP issue, there is a concern felt amongst the community of academics that by contributing material to a repository in some way results in the loss of personal IP. The notion that your value as an academic is measured on what you know can cause a guarded approach to the sharing information. This is in direct opposition to the concept of ‘community spirit’ that was identified as being the primary incentive to using shared repositories.

An interesting point that came out during the interview was the existence of informal communities of academics who share information readily and communicate regularly. During an interview session one person said,

> ‘I already talk to other academics who are subject experts in my area (of expertise) who are mostly based in the UK’.

Academics are already sharing knowledge and resources amongst their trusted peers, and they feel safe doing so, but this does not mean that they would be interested in doing so in a more formal and public environment. According to Wenger (2000)

> ‘The organic, spontaneous, and informal nature of communities of practice makes them resistant to supervision and interference’.

'I don't think the NDLR could offer anything of relevance to me' was another opinion voiced during the interview sessions. People are looking for specific information, if either they can't find it due to the poor usability of the system or find information that needs a lot of re-purposing to make it relevant, then they will move on and not return.

Other deterrents listed by the respondents included:

> 'Lack of technical expertise…staff may not know what type of object is suitable or how to wrap it up in suitable metadata'
>
> 'No clear policy from my institution about if we are allowed to do this or not'
>
> 'Lack of institutional incentive (e.g. for promotion) '
>
> 'Unless the deposit of the materials into the repository is integrated into the academic workflow, mainstream adoption will be difficult. The academics workflow should be examined in detail and a point identified where deposit would be appropriate.'
>
> 'Lack of relevance where you have a wide ranging general repository serving multiple users'
>
> 'Just to clarify – I think proprietary of publication material belonging to other people e.g. diagrams and pictures, as part of your lecture material, is a big unknown.'

8. Quality Management

The question of quality management in relation to shared repositories is an interesting one. On one side of the argument, there is a belief that the introduction of a quality management process could act as a deterrent for contributors. Some academics might be less inclined to contribute resource material if they felt there was a chance it would be rejected. In contrast to this argument we see from the results in Table 5, that there is significant support for a quality management process. This suggests that certainly from a users perspective having a quality review process protects the standard and quality of the resources stored within the repository. From the interview sessions conducted during this study all the interviewees answered in favour of a quality management system. However, they all spoke from the point of view of acquiring resources from the repository as opposed to depositing resources. A study conducted by Ardichvili et al (2003) showed that people are more inclined to use shared repositories of knowledge and information ' if they trust it to be a course of reliable and objective information'. Including a quality assurance process may very well encourage more use of the repository but would it impact on the number of contributions offered to the repository as a consequence? Conversely, it could also have an indirect effect of creating an element of prestige associated with having your resource approved and uploaded to the

repository. A question to be further explored within the community in the future.

9. Rewards

The concept of reward is subjective, for some it might be institutional recognition, or monetary reward and for others the concept of external reward is not even a consideration to participation. Some studies have shown that introducing tangible rewards can reduce intrinsic motivation and the feeling of community spirit resulting in competitive actions and knowledge hoarding (McLure & Faraj 2000). McKeachies study (as cited in Colbeck 1992) states that professors' joy in teaching will decrease as they pursue ever greater external rewards, and that their interest in doing a task for its own sake will decline.

The purpose of the questions relating to reward for using and contributing to a shared repository was to reveal the general thinking in connection with the concept of reward and to help consider whether the introduction of a reward system would have a positive impact on participation in shared repositories.

9.1 The first question posed in the questionnaire in relation to reward was:

> 'In your opinion should there be a mechanism for peer reviewing of learning resources that is tied into recognition leading to promotion?'

The reward in this case is twofold, recognition and possibility of promotion. The concept of peers reviewing and rating resources is not new to the academic community. Many repositories currently have a rating facility enabling users to input their comments and opinions and rate the resource on a scale of 1-5 or users can give it a star rating. Resources can also be rated on number of downloads, for example a resource that is being highly used is rated higher than one that is not so popular.

In answer to the above question, the majority of respondents said they 'don't mind' 32%, followed closely behind by those that 'strongly agree' 26% and 'agree' 23%. Overall, academics either don't care or are in favour of peer review. One view voiced was that 'There are clever people out there who can suggest improvement and correct errors'. While peer review appears to be an important influencing factor in the use of shared repositories, the author questions whether it is a convincing enough factor on its own to have a positive impact on repository usage?.

9.2 The second question relating to reward was:

> 'In your opinion is institutional recognition of the value of developing and sharing learning resources central to participation?'

The majority of the academics who participated in this study answered positively to this question and believe that institutional recognition is a key element to participation in shared repositories by way of contributing and/or using resources. This infers that the value that institutions place on activities can have a direct influence on the amount of attention and effort expended on the same activities by academics. This evidence is further supported by Colbeck (1992), where research demonstrated that 'professors' primary interests are strongly aligned with the missions of the institutions where they work. Institution type is the strongest predictor of whether faculty are more interested in teaching or research'. If your institute values the work you are doing, you in turn will feel valued and recognised for your efforts and for some this is incentive in itself. Of course, as a valued academic you strengthen your position within the institution and consequently increase the probability of promotion. One academic said during an interview session, 'It would be better if we were given some time to get involved in communities…at the moment it's up to us to fit these things in, in our own personal time'.

Conversely, if you are spending time on activities that are not valued and recognised by your institute this could have a negative impact on your position and status within the institute. Predictably, the majority of academics will focus their attention on the activities that will help to further their careers. One could hypothesize then that by elevating the value that institutions place on developing and sharing learning resources we could expect a significant increase in participation and interest in shared repositories.

A recent study indicates that 'organisational commitment is important and enduring to knowledge sharing' (Chieh-Peng Lin 2007) and in order to stimulate a culture of knowledge sharing within an organisation, management should be seen to support and to be actively involved in the sharing of knowledge. It would appear that more work is needed to help align the motivational factors of the organisation and the individuals working within it. What do institutes gain from supporting the sharing of knowledge and resources amongst its academics and what do academics gain from the experience? 'Sustaining the delivery of value (of knowledge sharing) and ensuring that there is alignment in the expectations of the value to be delivered are fundamental aspects' (Van Winkelen, 2003) of creating an environment in which knowledge sharing is embraced.

9.3 The final question relating to reward was;

> 'Are you in favour of developing a reward system for the development and use of learning objects that parallels the reward system for research?'

On a global scale, studies suggest that academic reward systems are based primarily around work done in the area of research. Prince, Felder and Brent (2007) claim that recent expectations for university faculty have been rising for over half a century to an extent that research productivity has been the dominant and sometimes the sole criterion for hiring, tenure and promotion. Recent trends 'seem to favour increasing the prominence and importance of research as a standard for tenure and merit for college professors' (Allen 1996). In the UK for example, the introduction of the Research Assessment Exercise in 1986, created a benchmark

by which the British government could allocate university funding based upon the institutes' research productivity. The same is evident in Australia where 'publication rates are used as both an indicator of modern and institutional performance and are important criteria in achieving external funding from government and other professional bodies' (McGrail, Rickard et al 2006). Publishing journal articles and participating in proposal submissions for research funding are measurable actions that can link to professional reviews. Standards for rewarding teaching initiatives and abilities are rarely comparable between institutions and are more difficult to evaluate (Allen 1996).

Academics interested in furthering their careers tend to be motivated by the extrinsic incentives of financial reward, status and tenure and as a result focus more attention on research activities such as journal publications and submitting proposals for research funding. Prince et al (2007) supports this theory stating that most faculty members adhere to the natural human tendency to pursue activities that are recognised and rewarded. Institutions also value and enjoy the status they receive indirectly through their academics publications and research activity. In some cases research can bring international acclaim to an institution, this in turn can have a significant impact on raising the institutions profile and in turn the institutes ability to attract high calibre students (Rowley 1996). Not a surprise then that the activity for which academics are rewarded is linked to one of the institutes' primary objectives of attracting students.

The majority of institutions have not yet fully embraced the concept of a reward system for best practice teaching and learning. In Cook et al's study (as cited in Colbeck 1992) intrinsic motivation has been used as an explanation for why faculty continue to teach even though they are better rewarded for research. An objective merit system that impartially measures academic activities that are quantifiable, such as the number of publications achieved, and the activities that are more difficult to objectify, such as the quality of teaching is yet to be realised (Allen 1996). Academics interested in developing their skills in this area, work on their own initiative without promise of reward or institutional recognition. This is a significant burden on academics, as it can be perceived as 'thankless work'. Faculty members possess little incentive to provide quality instruction and without such an incentive the rewards of research become alluring' (Allen 1996). As a result it is only the minority of academics who will choose to invest their valued time in the subject of teaching and learning. This is a considerable obstacle for the advocators of shared repositories as it is on this minority of academics that shared repositories rely for support and contributions.

Table 8 shows a noteworthy support for the development of a reward system, suggesting that by introducing a reward system that paralleled that of research, more academics would be encouraged to participate in teaching and learning activities, such as using and contributing to shared repositories.

10. Conclusion

This study has captured and documented some of the views of the Irish computer science academic community in respect to the sharing of learning resources and participation in a community of practice. If the views asserted by the computer science community of practice are a reflection of those shared by other faculties, then this study has given us an insight into the incentives needed in higer education to encourage more digital resource sharing and the barriers we need to remove to enable growth and development of more communities across all subject disciplines.

The limitations of this study centers around the size of the NDLR Computer Science CoP in Ireland. The 52 academics answering the questionnaire were also members of the community. In addition, the interviewees who participated in this study were selected academics within the NDLR CSCoP and therefore, may not represent the views of the majority of computer science academics in Ireland.

Mindful of these limitations, it would appear from the results of this study that academics, within the NDLR CSCoP, believe in the value of sharing knowledge and embrace the overall concept in theory. The primary incentives to participating in a shared repository, identified in this study, were having a sense of community spirit and gaining peer recognition. The primary deterrents were lack of personal reward in terms of institutional recognition and support and the time constraints of participating.

To stimulate more contributions to the repository and to encourage knowledge sharing amongst the community, more work is needed to give academics more of a reason to use the shared repository. In support of Wengers (1998) study, the introduction of a problem-solving focus group within the CSCoP could help to encourage more active participation and drive new membership.

A theory that the NDLR should explore in future community related strategies. The shared community repository needs to provide easy access to relevant and high quality resources/information and the institutes need to be seen to support and encourage the sharing of knowledge, as voiced by the participants of this study. Institutional recognition of the value of knowledge sharing is fundamental to the adoption of this ideal, as academics need and want to be supported and rewarded for their efforts. We need to invest more time in understanding how we can achieve a ‘win win’ situation for both the academic and the Institution by aligning the values of both.

Higher education Institutions in Ireland need to cultivate a sense of trust and openness and find a way to overcome the conflict of interest that exists between the competition for student numbers and the need for inter-institutional collaboration. By cultivating a level of trust between community of practice members across the varying institutes, knowledge sharing within the community and contributions of materials to the repository would surely increase. If educators and government leaders could find a way to break down the silos of knowledge that exist within and between Institutions the beneficial qualitative impact from this change would be far reaching and extend to society at large.

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