Networking of Young Researchers in the European Area: Relevance, Requirements and Realization Possibilities

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Abstract

Networking is a key competence, especially for young researchers in the field of medical informatics. Therefore, it is encouraged in organizations like AMIA. Since, in Europe no such networking possibility is known, concepts and ideas for the implementation shall be established and assessed with regard to their appropriateness. Demands, suggestions and attitudes of the community were collected in an online survey. Based on this, a workshop with international participants was conducted at Medical Informatics Europe 2018 in Gothenburg, Sweden. Following topics were addressed: i) communication channels, ii) activities to be carried out, iii) organizational structures and iv) acquisition of participants. The results show the relevance of such a networking platform. Furthermore, numerous requirements and realization possibilities, but also challenges were identified and assessed during the workshop. Altogether, essential ideas for the implementation of an European Young Researcher Network (EYouRNet) were collected, which can serve as a basis for the realization.

Keywords:

Social Networking; Students; Medical Informatics

Introduction

During the doctoral studies students need not only to exchange with senior professionals, but also within their peer group in order to share their knowledge and experiences. Furthermore, discussing approaches and problems with other young scientists can encourage the tackling of their own topic with new ideas and enthusiasm. Especially in the field of medical informatics, as a highly cross-sectional discipline [1], this interchange is particularly important to learn from one another.

In the international area, various associations provide support for the networking of young scientists through an organizational framework. The "Young European Associated Researchers Network" (YEAR), for example, offers young researchers from all scientific fields the opportunity for training, networking and consulting. However, membership is only possible for young scientists working in an organization that is a member of the European Association of Research and Technology Organisations [2]. Due to this fact, it is rather difficult for individuals to participate in such a network. Apart from this, there is a multitude of other discipline-specific networks, such as the EMES in the area of social enterprise [3]. A special forum for young medical informatics researchers is offered by the American Medical Informatics Association (AMIA) with the "Student Working Group" where (doctoral) students "*[...] can share their educational experiences and viewpoints, as well as information about career and educational opportunities*" [4]. In Germany, once a year a doctoral symposium is held funded by the German Association for Medical Informatics, Biometry and Epidemiology (GMDS).

Thereby, the aim is to offer doctoral students from the field of medical informatics the opportunity for networking, and sharing information and experiences [5].

For the interchange of doctoral students within the European area, there is no such networking possibility known. Therefore, as a first step, it is important to clarify to what extent an European network is really needed. In addition, if there is a need, a framework must be created with regard to how such a networking platform should exist, what requirements it should meet and what topics it should deal with.

For this purpose, the idea of the European Young Researcher Network (EYouRNet) as a starting point for a possible realization of such networking platform, was created. Young scientists should have the opportunity to share their experiences, answer questions and get inspired by the work of others. Furthermore, a logo (as seen in Figure 1) was developed beforehand for the recognition value of the EYouRNet-project.

Figure 1 – EyouRNet Logo

Methods

An online survey was used to determine to what extend such a networking platform is considered as relevant by the community members. The survey was distributed via the Council of the European Federation for Medical Informatics (EFMI) and the GMDS mailing list. In addition, suggestions and attitudes of potential future participants and other community members were identified. Based on these results, a workshop was held at the Medical Informatics Europe (MIE) 2018 in Gothenburg, Sweden. The workshop addressed the key issues for the successful implementation of an European networking platform emerged from the survey.

Preliminary Online Survey

A self-developed questionnaire was used for the preliminary online survey. It served to collect suggestions, demands and attitudes of the medical informatics community regarding organizational structures and activities of the proposed EYouRNet. For the implementation of the questionnaire the online survey service "eSurvey Creator" [6] was used in English language to enable the participation of international community members, especially Europeans. To reach the target

group, the survey was distributed via the EFMI-Council and the mailing list of the GMDS.

The self-developed questionnaire contained twelve questions in the form of free text fields, multiple choices and Likert scales. At various points there was the possibility of introducing further ideas and sharing thoughts and comments.

Firstly, demographics and previous experiences with networking possibilities during the doctoral studies were determined. Secondly, the relevance of various topics which could be addressed in the proposed EYouRNet were inquired. Besides the rating of given topics, such as education concepts, lessons learned and career opportunities, the participants could also contribute their suggestions. Finally, the question was asked how a personal contribution can be made.

Definition of Workshop's Thematic Fields

The information provided by the participants was assessed using common descriptive statistical methods. In addition to frequencies and relative frequencies, a content analysis was conducted relating to the free text fields. Here, four thematic fields could be identified, which are decisive for the implementation of the EYouRNet. These were extended by questions stimulating the participants to discuss [7].

1. **Communication channels**
   Which communication channels are necessary and suitable?
2. **Organizational structure**
   Which structures regarding the internal organization are reasonable?
   - Who does what when?
   - Which roles/positions do we need and what are their responsibilities?
   - What may be my own contribution to the EYouRNet?
3. **Activities to be carried out**
   Which activities should be carried out by the EYouRNet?
4. **Acquisition of participants**
   How to gain interested people both participants of EYouRNet and leading people?

Workshop

A 90-minute lasting workshop was organized to take place at MIE 2018 in Gothenburg, Sweden on April 25. The workshop aimed at introducing and improving new networking and collaboration approaches between doctoral students in the European area, especially within the EFMI. The workshop was especially directed to (former) doctoral students of medical informatics and related fields of research. Nevertheless, all conference participants were invited to take part. In the context of the workshop, possible structures, requirements and needs for the networking platform along with potential future participants and other community members should be discussed. Therefore, the workshop consisted of four successive parts: (1) round of introduction (2) presentation of the results of the online survey, (3) introduction of a national concept for networking, and (4) group work and discussion.

(1) Round of Introduction

First of all, the participants were asked to introduce themselves including their name, home country and working context, as well as the information whether or not they already have a doctoral degree. In order to break the ice, the participants were given the opportunity to mark their home country on a world map with a colored adhesive dot.

(2) Presentation of the Results From the Online Survey

To initiate the discussion, the results of the previously conducted online survey were presented. This comprised the results regarding the relevance of the proposed EYouRNet, the experiences of the participants, the topics to be addressed within the networking platform and the future contribution for possible members. Thereby, visualizations like pie charts were used for a better understanding.

(3) Introduction of a National Concept

As third part of the workshop, a short introduction to a national concept for the networking of doctoral students was given. Once a year, German doctoral students of medical informatics have the opportunity to meet up at the "GMDS-Doktorandensymposium". This event is funded by the GMDS and organized by the students themselves at changing locations in Germany. The two to three day event always includes a presentation and discussion of the individual topics of the doctoral theses, an excursion to prospective employers for medical informatics specialists, and a social event [5].

In 2017 the symposium was organized by the authors of this paper at the Peter L. Reichertz Institute for Medical Informatics of TU Braunschweig and Hannover Medical School. That year's excursion led the participants to the accident research division of "Volkswagen AG".

(4) Group Work

The previously mentioned thematic fields (see "Definition of workshop's thematic fields") were presented to the workshop participants and subsequently used for a group discussion. Since the actual number of participants of a workshop at a conference is not known beforehand, two different discussion methods have been prepared.

Whereas for a small group size an open discussion format would have been used, the simple and flexible group discussion method "World café" would have been the choice for a larger amount of participants [7]. When using the second method, the entire group is divided into smaller working groups interchanging independently, for example at different tables. Each of these groups focusses on one subtopic. The discussion points and results of each group (per table) are documented. After a pre-determined time, all but one group member, the table host, switch to a different table and thus to another subtopic. This is the starting point for a second discussion session. Now the table host briefly explains the previous discussion points and results to the new table members. Building on this, the discussion is continued with the new group members. After a predefined number of iterations the results for each subtopic are presented to the entire group. This gives the participants the opportunity to express supplementary thoughts and opinions they had not dealt with before.

Results

Online Survey

The preliminary online survey was available from March 13th to April 16th, 2018. In total 76 scientists participated in the survey. 57 of them completed the whole questionnaire. This results in 19 partial answered questionnaires.

Most participants came from Germany (40), three from the Netherlands, two each from Cameroon, Kenya, Romania and one person each from Austria, Brazil, India, Mexico, Russia, Slovakia, Switzerland and the USA. For 19 participants the home country is unknown, because this question was not included in the beginning of the survey by mistake. The majority of the participants had a Master degree or Diploma (46), followed by a Doctoral degree (15) or a

Habilitation (11). Only two participants had another, unspecified academic degree.

The relevance for the implementation of the networking platform can be derived by the responses to the question of being interested in participating or supporting the EYouRNet. More than 80% of participants are interested in participating or supporting the proposed network (see Figure 2).
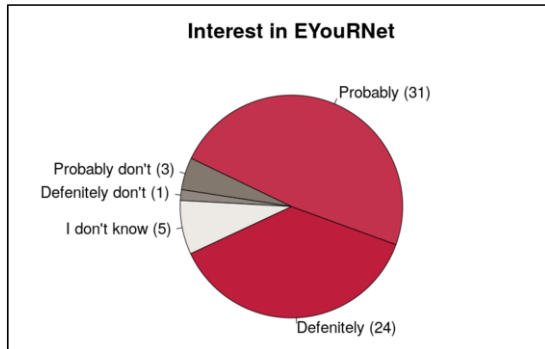

*Figure 2 – Interest of **P**articipating or **S**upporting the EYouRNet*

Participants of the survey, who have already finished their doctoral studies (19), were asked about their network experience as young scientists. Approximately one third of the respondents (7) stated that they had not received any support by networking possibilities. The remaining two-thirds were actively attending working groups (6), made informal contacts at conferences (4) or received support from colleagues (2).

With regard to the question of missed networking opportunities, only about one sixth of the respondents stated that they had not missed anything (3/17). The remaining 14 would have above all liked support in the form of networking events, informal exchanges and advices from experienced scientists, preferably also via an online platform.

The networks contribution to the doctoral student's self-management skills, technical competence and personal development was assessed. The majority of participants stated, that the impact of the networking possibilities is most important for the personal development. The contribution to the self-management skills and the technical competence were equally weighted.

The time to participate as a young researcher in such a network was indicated to be especially inspiring in the beginning of the doctoral studies. Nevertheless, also a later start has been reported as valuable and recommended.

Potential topics for the network to be addressed were also included in the survey. The results show that, apart from training concepts, all proposed topics were ranked as very important. This includes lessons learned during the doctoral studies, discussions on pitfalls in peer groups, training possibilities during the doctoral studies, cooperation opportunities, project support/exchange and career opportunities. In addition, the participants contributed the following suggestions and ideas with regard to further topics:

- Training on writing and presentation skills (2)
- Working groups on subtopics (2)
- Strengthening of social network (1)
- Get in touch with key players in the field of medical informatics and the EFMI-organization (1)
- Site visits around Europe (universities, hospitals) (1)

- Overview of common methods and tools (1)

In the concluding comments, eight participants gave valuable hints and ideas for the realization of the EYouRNet. Whereas, single individuals doubted the feasibility of the network others stated that they were happy to be a part of the realization. A major challenge is to find volunteers (students) to spread the ideas, both to interested students and to supervisors. Supervisor's role is to enable their doctoral students to participate, for example by financing an (extended) conference participation. Furthermore, supervisors play a decisive role in validating discussion outcomes and in the provision of valuable input. This goes hand in hand with the regulation of organizational issues. Here, the workshop verified the fact that face-to-face meetings require a high organizational effort, whereby they are probably most effective because they enable the participants to build direct working relationships (see subsection "Communication channels"). In addition to the face-to-face meetings, online meetings were suggested.

MIE Workshop

The workshop "Networking of PhD Students in the European Area" took place within MIE 2018 in Gothenburg, Sweden on Wednesday 25th April. 16 scientists from the field of medical informatics attended to this workshop. Their home country was mainly Germany, yet also Portugal, the Netherlands, Sweden, Finland and Ethiopia were represented. Among the participants only one had a doctoral degree.

First of all, the results of the online survey and the national concept of "GMDS-Doktorandensymposium" were presented in order to initiate the group work. Due to the amount of participants, the "World-café" format was chosen for the group discussion with two sessions each lasting 15 minutes. Four tables were prepared, each with a thematic field, the corresponding questions, and the ideas as well as the remarks from the online survey.

Communication Channels

Networking is premised on communication with one another. Accordingly, suitable channels must be identified for the communication in the network within the European area. Communication channels proposed by the survey participants were online platforms and real-life meetings. These were already noted on the prepared results document under the heading "Communication channels" (see Figure 3).

Regarding a suitable channel the participants of the workshop uttered the idea of using already existing platforms like LinkedIn, Rocket.Chat, Facebook, Google, Confluence or Zulip (see Figure 3). The use of such platforms offers the advantage of recourse to validated products with low overhead. It is important to consider where and how personal confidential data is stored. The participants explicitly whished no e-mail communication as these is difficult to manage over long periods of time with several participants and offers no possibility for new members to access historical posts.

For real-life meetings they proposed annual meetings, for example in combination with the MIE conference. They thought about a one-day meeting in advance or afterwards the conference to reduce the travel costs and organizational effort in comparison to independent meetings. Nevertheless, additional financial resources may be necessary.

Another mentioned idea was to host regular tutorials. Here, the participants thought about an list where doctoral students can add their topic-related expertise to talk about. Periodically training courses could be organized based on this list by students for students.
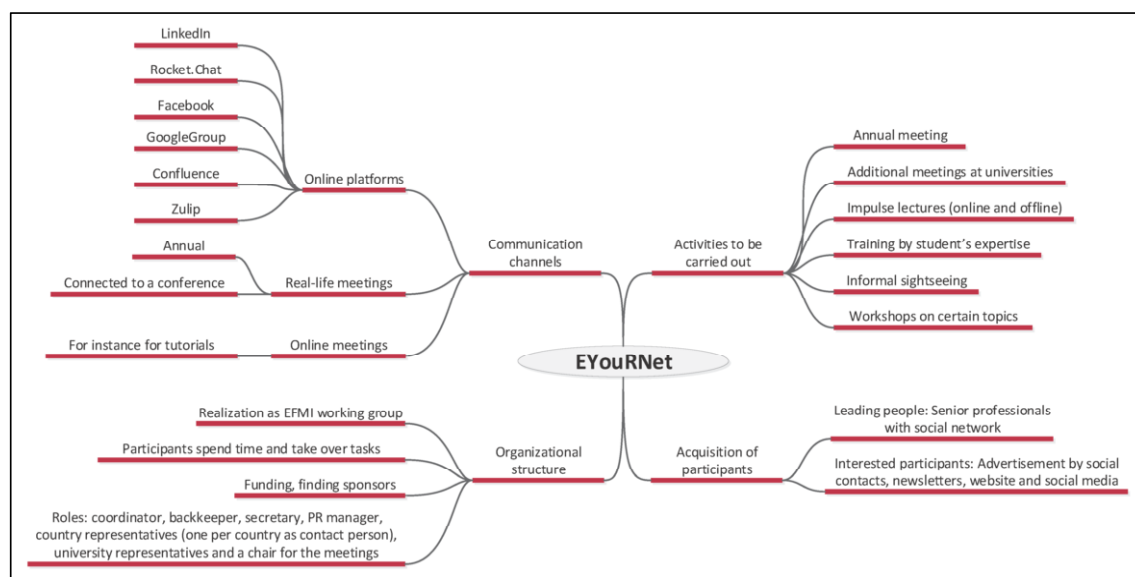
Figure 3 – Results of the World-Café – Suggestions and Demands of the articipants

Organizational Structure

In order to increase the chances for the EYouRNet to emerge and continue to exist, the organizational structures should be as complex as necessary, but also as simple as possible. This goes hand in hand with the lowest possible workload for (as many) members as possible. Thus, the obstacle to enter the network is small and the overall time expenditure for active members of the network stays realizable in the everyday work. The establishment of an EFMI working group represents a possibility for the realization within already existing structures.

The question "Which roles/positions do we need and what are their reponsibilities?" was answered with a list containing the following roles: a coordinator, a backkeeper, a secretary, a public relation manager, country representatives (one per country as contact person), university representatives and a chair for the meetings. The responsibilities of university and country representatives are getting in touch with (new) members and make contact to local existing student organizations.

Concerning their own potential contribution to the network the participants proposed time instead of money. They assumed, that every active member could spend up to four hours per month for the network. They also offered the possibility of couch surfing to minimize the traveling costs. Nevertheless, such a network relies on funding. Therefore, sponsors, university funding and student organizations with financial resources need to be identified and asked for their assistance. The following institutions are potential contributors: the EFMI, the GMDS, the International Medical Informatics Association (IMIA), cooperating partners, universities and the "Deutscher Akademischer Austausch Dienst" (DAAD), which "*[...] is the world's largest funding organization for the international exchange of students and researchers*" [8].

Activities to be Carried Out

Several activities to be carried out within the EYouRNet were identified by the workshop participants (see Figure 3). But they also perceive the organization of activities as most challenging, due to the fact that someone has to be responsible for the organization. Consequently, this person has a high (unpaid) expenditure. Moreover, the time required to prepare an activity should not be underestimated.

As most important activity annual meetings were suggested in combination with conferences so that the travel costs are minimized in comparision to additional meetings, e.g. at other universities. Organizers have to be aware of the fact, that there are often preconference workshops, which may are in temporal conflict with an EYouRNet meeting. The workshop participants also suggested informal sightseeing at the conference location. A list of sights shall be provided by local students. Formal meetings (also online) on selected topics with invited speakers were also mentioned. In addition, the participants wished for a platform to make calls for papers and other relevant content available to the community with little effort. This also includes self-organized workshops and further training of other doctoral students within the network. A list of the doctoral students' expertise can serve as a basis for such workshops and to find an appropriate topic by vote.

Acquisition of Participants

It is important to gain leading people to keep such a network running. The participants proposed senior professionals as potential leaders. However, it should be born in mind that their workload is often already very high anyway. For this reason, a self-administration of the network by doctoral students should take place.

One other important question is "how to gain the interested people as participants". Therefore, advertisement is needed by social contacts, newsletters, websites and social media. In doing so, ecpecially the personal benefits have to be communicated. For example, invited key players in the field of medical informatics can be attractive.

Discussion

In this paper, the relevance, requirements and realization possibilities for a European networking platform of doctoral students in the field of medical informatics are assessed. Therefore, a self-developed online survey with 76 participants of the community was conducted. Based upon the results of the survey a workshop with 16 participants has been carried out at MIE 2018. Here, four essential thematic fields were dealt with.

The results of the survey show the relevance and demand for the EYouRNet. More than 80% of the participants of the survey

are interested in participating or supporting the proposed network. During the workshop many realization possibilites with varying personal and financial effort were discussed. Besides regular meetings in combination with conferences, existing communications platforms such as LinkedIn, Facebook or Zulip were preferred for the interchange. Overall, the organizational structure should be small to minimize the obstacle to enter the network. In addition to a network coordinator and country representatives many other roles are needed to keep such a network running.

There are, however, some limitations to the described work. The online survey was mainly answered by german people (bias), due to the dissemination via the GMDS mailing list. Furthermore, the dropout rate was 25%. This could have been caused by a lost of interest to fillout the questionnaire. Also the amount and length of questions, as well as the time taken to answer them may have deterred people to complete them. Nevertheless, every participant who has answered the first four questions also completed the whole questionnaire. This confirms the high level of interest in this topic. Even though not all questionnaires were filled in completely, all answers can be taken into account for the assessment. All participants answered the questions regarding their demographics and the relevance for implementing an European networking platform. The remaining questions were designed independently, thus they can be analyzed separately.

Due to the fact that the majority of the workshop participants came from Germany too, there will be a further bias. This bias could be decreased by additional interviews with scientists from other countries. It should be born in mind that both the online survey and the workshop were conducted in English language to reach international participants. Despite this bias, the results are sufficiently informative, as these are based on statements by members of the target group (young scientists). In-depth considerations of the ideas discussed in the "World-café" during the workshop are necessary in order to select suitable candidates for an initial implementation. Furthermore, maybe the presented results of the survey and the national concept "GMDS-Doktorandensymposium" influenced the participants during the workshop. However, providing general ideas and insights was a conscious decision to initiate the discussions in the rather short time of an workshop. Nonetheless, many ideas and realization possibilities were collected from the workshop participants.

So far, there has been no exchange with other working groups or organizations for the networking of young scientists. A next step could be to exchange with these groups in order to learn from them.

Conclusions

Networking is a key competence, especially for young researchers in the field of medical informatics as a highly cross-sectional discipline. Therefore, it is encouraged in many organizations like AMIA. However, within the European area, there is no such networking possibility known. In this paper the relevance, requirements and realization possibilities for a European networking platform of doctoral students in the field of medical informatics are presented. The relevance as well as first attitudes and suggestions were established by an online survey. In a subsequent workshop within MIE 2018, possible communication channels, organizational structures, activities to be carried out, and acquisition of participants were discussed with potential future participants and other community members.

Altogether, the relvance and the demand for the EYouRNet was shown. Furthermore, the general acceptance, in the surveyed group, to participate and support the network is given. Essential ideas for the implementation of the EYouRNet were collected, which can serve as a basis for the realization.

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