Teacher Collaboration in the Context of Networked Learning. Current eTwinning Practices and Future Perspectives

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Abstract

This article identifies emerging trends and challenges for teacher networking and collaboration in the context of networked learning based on a review of existing literature and on three consultation workshop with practitioners and stakeholders. In total, around 70 different people have been consulted to explore the potential of networks in the context of teacher collaboration. We argue that while the future of learning has been discussed extensively, the role of teachers, and more specific the role of teacher collaboration through networks is perhaps less taken into account. This article aims to demonstrate the importance of current and future networks for teacher collaboration and to highlight key issues to be taken into account for the further development of teacher networking, both as a practice and as an object of study. In general, teachers themselves are quite positive on the use and potential of ICT-enabled networks for improving the quality of their work, and they would like to see a more widespread use of ICT for collaboration with their peers, especially across borders and cultures. However, recognition of this work as part of their continuous professional development is regarded as important, as well as support and training to deal with data management, privacy and security issues. There is also a strong need for pedagogic training which empowers teachers with the required ICT skills to help their students become digitally competent and for guiding students towards more exploratory and creative interaction with ICT tools. It should be highlighted that already today; the eTwinning platform proves to be quite a significant activity for those teachers involved. Openness, flexibility and interoperability are regarded to be important for the future development of teacher collaboration networks.

Keywords

Networks, collaboration, teacher training, eTwinning, future of education

Looking into the future: Introduction

The evolution of education and its future has been tackled from various perspectives varying from technology enhanced learning to personal digital spaces, school reforms and revision of curricula, amongst many others. The role of teachers for the future of education plays a major role in such discourse. Increasing computational power and the emergence of the Internet has had a great impact on the way teachers are doing their jobs. Teachers in Europe believe that Information and Communications Technology (ICT) have improved their teaching (85%) and two-thirds claim to combine various modes of ICT as resources for their teaching (Cachia, Ferrari, Ala-Mutka, & Punie, 2010). However, in many ways, teachers are caught with one foot in the future and another one in past (Caroll & Resta, 2010). On the one hand, developments of technological tools and the vast take-up of such applications imply that teachers need to keep abreast of technology developments, in order to keep up with their students' knowledge of new technologies. On the other hand, most teachers still have to work in school environments where policies are outdated and curricula no longer cover the skills required for today's societies. Moreover, though teachers are major stakeholders in the education field, they are rarely consulted in research on the future of learning (Ala-Mutka, et al., 2010).

The unprecedented opportunities brought about by networking tools are enabling teachers to network and collaborate with other teachers from anywhere, at any time. Such development in the profession of teachers is a

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[1] The views expressed in this article are purely those of the authors and may not in any circumstances be regarded as stating an official position of the European Commission.

significant aspect which cannot be ignored when discussing the future of education. Teachers often feel isolated in their own schools, confined to a single school experience (Gatt, Pereira Cunha, & Costa, 2009). They claim that tight timetables and overloaded curricula do not allow them enough time to explore innovative pedagogies (Cachia, et al., 2010). While there is a vast array of research addressing teachers' professional development, only recently we observe some focus on alternative approaches of addressing professional development, through the study of networks (Hofman & Dijkstra, 2010). A survey conducted in the US found that teachers believe that collaborative professional development activities, such as networking with other teachers outside school, is more effective and helpful as professional development than traditional forms of training (US Department of Education, 1999). Similarly, OECD's report (TALIS, 2009) finds that involvement in a "professional development network" ranks high as regards the perceived impact on teachers' professional development and "informal dialogue to improve teaching" is mentioned as the most common activity for professional development in most countries (participation rate of over 90%) and teachers report that participation in informal dialogue has a moderate or high level of impact on their professional development.

Caroll & Resta (2010) explore how networks developed by prospective teachers can act as a form of support and mentoring during their careers and also as a means to access new research-based teaching practices and resources. Networks have been proposed to be an organisational answer to the diversity and complexity of educational needs (Bienzle, et al., 2007). As Bienzle et al. (2007) argue while the expectations of the potential of networks is often exaggerated, networks can have an important role in education in providing a structure for teachers' professional development and in integrating the diverse and fragmented lifelong learning landscape. Networks provide platforms where resources can be shared, hence reducing teachers' workloads as teachers do not need to create resources from scratch (Johnson, Adams, & Haywood, 2011). Notwithstanding the potential value of networks for teacher collaboration, to our knowledge, networks are still missing in the discourse addressing the future of teacher collaboration.

This article aims to demonstrate the importance of current and future networks for teacher collaboration and to highlight key issues to be taken into account for the further development of teacher networking, both as a practice and as an object of study, based on a review of existing literature and on three consultation workshop with practitioners and stakeholders

Method

Data for this work has been gathered from desk research and three workshops with eTwinning teachers, eTwinning National Support Service (NSS) and education experts. In total, around 70 different stakeholders and/or practitioners have been consulted.

The eTwinning platform (www.etwinning.net) positions itself as the community for schools in Europe. It promotes teacher and school collaboration through the use of ICT. Currently, more than 140.000 teachers are registered in eTwinning coming from more than thirty-two countries in Europe. Since 2005, eTwinning has been regarded one of the most successful actions of the school education programme (Comenius) under the European Union's Lifelong Learning Programme. In this study, we use eTwinning as a case study for teachers' professional collaboration networks and their alternative future scenarios.

In the first workshop, we have collected data from eTwinning teachers participating in a 2011 eTwinning conference, through the use of personal network visualisations. Participants were asked to list down the people they communicate with through the eTwinning platform and how they have met these people, whether face-to-face or virtually. Once the list was completed, teachers were instructed to draw a visual map of how the people they have listed are connected and to answer four questions. Although, hand drawn maps tend to be simplistic they provide unique typologies of how respondents perceive their personal networks (McCarty, Molina, Aguilera, & Rota, 2007). We have opted for a visual technique, as it enabled respondents to visualise their network and keep the network in mind, when they answer the questions posed to them.

In the second and third workshop, we applied foresight methods to elicit data from different educational experts. Here it is important to highlight that foresight methodology is not aimed at predicting the future, but rather to discuss and elaborate different plausible futures. It is a method which values the multiplicity of perspectives and views held across actors from multidisciplinary fields, through which both informed opinions and creative approaches are distilled (Keenan & Popper Villarroel, 2007).

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Personas were utilised to discuss with different participants how teachers' collaborative networks can be improved in the future, starting from the use of the eTwinning portal by teachers as a current practice. As defined by Calde, Goodwin and Reimann (2002) personas are "fictional, detailed archetypical characters that represent distinct groupings of behaviours, goals and motivations observed and identified during the research phase". A major advantage of this method is that it allows collaborative interaction with users of a system which could enable otherwise complex product development processes (Long, 2009). The personas method mainly consists of the creation of different personas based on general attributes, as opposed to presenting a typical user of the system. For this project, six personas were identified. Each persona was defined according to their activities on eTwinning (activity), the institutional recognition of eTwinning in their respective countries (environment), their computer literacy and their pedagogical experience (competences) and major problems hindering their participation in eTwinning (problems).

Group foresight sessions were also undertaken during the workshops. These sessions we aimed at discussing the main four stages ideal for achieving expected impacts relevant to policy and decision making systems, namely: (1) understanding current situation, (2) exploring what could happen, (3) debating what stakeholders or participants would like to happen, and (4) deciding what should happen (Cagnin & Keenan, 2008).

It is important to mention that the method opted for this study presents some limitations to the interpretation of the results. Teachers consulted during the workshops are by no means representative of the teacher population, as teacher attending the eTwinning conference are also a specific group of teachers. Vuorikari (2010) describes current eTwinners as the "innovators" teachers who are able and willing to use ICT for cross-country school collaboration. However, given the aim of this work is to better understand collaboration through networking amongst teachers, we believe that the results of this work could contribute to the discourse on the future of teacher collaboration, rather than taken as evidence of what is happening today.

A closer look at the future of education

Already in 2005, the Journal of Education for Teaching dedicated an issue on the future of teacher education. As discussed in the editorial of this issue, unless we plan strategically for the future of teacher education, we will be unable to deal with teachers' future needs (Newby, 2005). While 2025 might seem like a long way ahead in the future, and the future can be changed by unexpected interventions, we have to keep in mind that children starting schools in 2011, will be finishing their obligatory schooling or entering higher education in 2020-2025 (Newby, 2005). The future landscape is "only one childhood away" (Newby, 2005, p. 254).

The important role of teachers as major stakeholders in shaping the future of learning is also highlighted in various studies. As learning becomes more personalised, the one-size-fits-all teaching method is becoming more and more outdated (Redecker, et al., 2011). Teachers should be prepared to design learning experiences which reflect the growing importance attributed to innovation and creativity in our societies (Cachia, et al., 2010; Johnson, et al., 2011). They also must be prepared to adapt their teaching practices to a rapidly changing global society. A call for action designed for the redefinition of teacher education highlights that teachers should be prepared to enable students to maximise the potential of their formal and informal learning. Teachers should also be ready to facilitate learning in multiple modalities: embracing a greater diversity of spaces, times, resources, media and methods for learning, as well as 21st century environments which are synchronous and asynchronous, face-to-face and virtual, local and global (Caroll & Resta, 2010). The role of teachers will evolve and it becomes closer to that of mentors (Redecker, et al., 2011). The emergence of open content has resulted in a vast array of education material posted online and shared for free. Openness, sharing and collaboration are provoking a profound shift on the way students study and learn (Johnson, et al., 2011) and on the way teachers teach and learn. Teachers will need to work as effective members of learning teams, made up of novice and accomplished educators, students and subject matter experts which will turn schools into hubs of networked learning ecology (Caroll & Resta, 2010). Caroll & Resta propose the use of simulations as a method of training for prospective teachers to encounter and respond to difficult situations in collaboration with colleagues.

In 2003, Gilroy predicted that by 2010 teacher education staff in universities will have retired without being replaced as initial teacher training (ITT) will become a thing of the past. In 2011, teacher training is still a major aspect of education. Teacher training has been recognised as key element in the Lisbon agenda for the creation of an effective "knowledge triangle" which consists of education, research and innovation (Council of the European Union, 2010). In a recent study on creativity and innovation in school, teacher training has been highlighted as a major area where more effort and improvement should be addressed in educational policies

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(Cachia, et al., 2010). Teacher training must go beyond the present paradigm of teacher preparation (Caroll & Resta, 2010). Prospective teachers need to experience a wide array of learning environments: observe how students learn in non-school environments, how learning takes place in formal and informal contexts, how students engage in socially networked informal learning and how they collaborate between themselves (Caroll & Resta, 2010). Unfortunately, as argued by Caroll and Resta, diverse policy contexts and a lack of shared vision among stakeholders are limiting the reinvention of teacher education.

The role of schools as the major source of knowledge transmission has been taken for granted. Schools became so important in our societies that political intervention has made school attendance obligatory in countries in the West. However, recent developments of education suggest that as education can take place anywhere, the role of schools continues to evolve. The traditional link of learning with specific spaces, such as classrooms, is becoming de-linked as time and place constraints for connectivity are abolished (Miller, Shapiro, & Hilding-Hamann, 2008). Increasingly, information is stored outside school servers and acceptance and adoption of cloud-based applications and services is changing the way information is conceptualised in education (Johnson, et al., 2011). These changes indicate a revival of the discussion on de-institutionalisation of schooling, coined by Ivan Ilich in 1971, and now emerging in different future scenarios, as learning is taking place inside school, outside school, at home and online. For instance, in one scenario explored by Williams (2005), the development of learning networks and powerful ICT solutions are created as alternatives to the public school sector which is no longer able to deliver learning tailored to individual needs. However, schools remain an important institution in other future scenarios, as they are seen as instrumental in maintaining social capital (OECD, 2001). In more recent studies, it has been argued that schools need to be repositioned within the emerging learning landscape, both in terms of new formats and strategies for learning, as well as offering relevant, effective and relevant learning experiences (Redecker, et al., 2011). Schools have to be situated within the context of the future labour market requirements, so as to be flexible in responding to individual's learners needs. According to Redecker, et al. (2011), the role of schools shall be to guide students in selecting learning opportunities which best fit their lifestyle; to monitor progress; and to manage assessment, certification and accreditation mechanism. Controlling of costs from schools will also bring about the development of new models to serve students, such as providing open content through networks (Johnson, et al., 2011).

Literature on the future of learning has also brought to the limelight the issue of re-skilling. The future of education will be influenced by a need for new skills which are "generic, transversal and cross-cutting", through which learners will be able to benefit as part of their lifelong learning path (Redecker, et al., 2011). This study underlines a major shift from knowledge to competencies, namely: problem-solving, reflection, creativity, critical thinking, learning to learn, risk-taking, collaboration and entrepreneurship. In addition to these competencies, in a world where information is everywhere, mentoring and preparing students to be able to assess credible information and make sense of it should be high on the education agenda (Johnson, et al., 2011). It has also been argued that learning will become more active and hence, there should be more skills focusing on learning by doing and through interaction and collaboration with others (Ala-Mutka, et al., 2010). These changes also mean that teachers will need to be able to re-skill their competencies, so as to keep updated with changes and be able to respondent to fast changing working environment. In parallel, school policies need to better align learning objectives with societal needs mainly because in the future European societies will be more intercultural and students need to become better active citizens.

Another observable trend in terms of how education will evolve is the shift between formal and informal learning. It has been recognised that education mechanisms will have to be developed to better identify and assess informal skills (Redecker, et al., 2011). With the emergence of innovative technologies, individual learners are becoming more and more empowered. Learning is no longer confined to the classroom. While digital media literacy is on the increase, as an alternative to the lack of formal training, as yet, we are far from seeing digital media literacy as the norm (Johnson, et al., 2011). Discourse on the future of learning is also grounded on the idea that learning should be a continuous activity and not only confined to education institutions and bounded only around obligatory schooling. A major component of learning takes place at the work place, in non-formal contexts and during leisure time. Lifelong learning should span from pre-school to post-retirement.

The trends and challenges listed above demonstrate that some major changes are taking place in education which will have major implications on the way teachers will do their job in the future. Predictions on the future of education challenge current settings and propose various horizontal changes that need to take place in order to enhance teacher collaboration. In the next sections, consultations with teachers are presented, as a way of

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understanding how teachers perceive and view currents trends and challenges and what they believe should be done in terms of collaboration and networks.

Teacher Collaboration Networks: Today and in the Future

Following the increasing digitalisation of society, there is a lot of pressure on schools for change and adaptation. The effectiveness of such evolution in schools is highly influenced by the ability, willingness and readiness of teachers to adapt to change and implement new teaching methods and practices in the classroom. Teacher training and professional development are the base for shifting current pedagogies. There is a strong need for pedagogic training which empowers teachers with the required ICT skills to help their students become digitally competent on the one hand, and for guiding students towards more exploratory and creative interaction with ICT tools on the other hand (Cachia, et al., 2010).

Views from current eTwinning teachers

In terms of skills, teachers in our workshop claim that digital competence is one of the major skills developed through the use of eTwinning. Teachers have learned predominantly about using and interacting with new ICT applications. Participation in eTwinning has also enabled respondents to gain cultural competence through the provision of online tools which allow teachers to meet virtually and create projects with teachers from different countries and collaborate via the Internet. The promotion of cultural diversity in Europe is a key European attribute but also a challenge listed in the 2006 Riga Declaration. Turning diversity into opportunity and preventing from being an obstacle for cooperation is a major challenge for Europe which eTwinning in its simplicity is addressing effectively.

eTwinning collaboration has also led teachers to further develop a wide array of interpersonal skills, such as communication, cooperation and better time management. In addition, the opportunity to collaborate in another language has helped teachers and their students to enhance linguistic skills. Some teachers also claim that participation in eTwinning has enabled them to ameliorate their leadership skills, through managing people, taking initiative and learning to support and instruct team work. Others felt that through their participation they had opportunities to be creative, to develop their own ideas and learn how to learn through collaboration. Collaboration across countries does not only signify intercultural cooperation for teachers, but also understanding different education systems. In many aspects, teachers are exposed to new ways of teaching and understanding other education system beyond their own school confinement.

Of all the skills mentioned, it is perhaps unfortunate that very few teachers claim to have gained pedagogical competences through participation in eTwinning. Undoubtedly, more research is required to get a better understanding of this issue. These results are very much in line with another survey conducted between 2008-2009 (Crawley, Gilleran, Scimeca, Vuorikari, & Wastiau, 2009). Data from this survey show that the highest impacts on teaching practice were improving ICT skills, followed by improving foreign language skills and getting to know other schools systems. Interestingly, improving teaching skills came at a lower scale, while having fun received the highest score.

When asked how teachers see their professional network and eTwinning use evolving in 10 years time, teachers showed a major concern for the low reach of eTwinning across Europe. Teachers would like to see eTwinning expanding and being used more widely across European schools. While many teachers participate in eTwinning, eTwinning participation in comparison to the teacher overall population remains low. The eTwinning monitoring that uses the official registration numbers reports that in 2010, 1.9% of teacher population participate in eTwinning, while in 2011 this percentage grew to 2.3% (Vuorikari, 2010). It should be mentioned, though, that capturing the real number of participants in eTwinning is challenging, as Vuorikari argues that teachers participate in eTwinning even if they are not registered on the platform. While comparison to the entire teacher population shows that eTwinning still has a limited reach, at the same time, it is important to mention that given its short history (since 2006) and its low cost and administration, eTwinning is already contributing fruitfully towards teacher collaboration.

Future uses of eTwinning: Fictitious Personas development

In order to discuss the future of teacher networks, six personas were identified to understand how users of eTwinning engage in different forms of collaboration through their network. It should be noted that the personas presented to the teachers are entirely fictitious. The profiles have been developed along a matrix according to

formal and/or informal formal recognition (high vs. low) of their participation in eTwinning and according to their activity on the application (high, normal, low). The matrix is displayed below:

Recognition	Activity		
	High Activity	Normal Activity	Low Activity
Recognition: High	M A R I A User: Enthusiastic Age: 32 years	M A R C U S User: Supporter Age: 27 years	S H A U N Type: Lurker Age: 47 years
Recognition: Low	P E T E R User: Networker Age: 27 years	N I N A User: Wishful Learner Age: 58 years	L U C I A User: Occasional Age: 28 years

In this section, we will highlight major issues arising from the personas approach which are important in terms of development of future teacher collaboration. Formal recognition of participating in teacher networks has been put forward as very important. Participants felt that unless teachers using networks such as eTwinning are formally recognised for their work, their motivation will diminish in the long run, more so, as teachers often do this kind of work outside school hours.

A division on opinion could be observed when it came to discussing the purpose of teacher networks. While some educational stakeholders felt that the main purpose of systems like eTwinning should be teachers' own professional developments, others felt that the main objective for usage should be for the benefit of the pupils. This suggests that development of networks for teacher collaboration should have a clear purpose for usage which is also communicated to the teachers.

From a technological point of view, education stakeholders emphasised the need for more flexible applications. Some of the personas in our study were limited in what they wanted to do with technology because eTwinning is slightly slower when it comes to development of new applications. In some respect this may be considered a limitation, but at the same time it is difficult for eTwinning to compete with the major networking applications in the market. Teachers would like to be able to interact and collaborate across different networking applications. At the same time, eTwinning was hailed for its security. Hence, when it comes to education networks, it seems a balance between flexibility and security is the most apt model for collaboration.

Discussion on technology adoption cannot ignore users who are not willing or less willing to engage in using technology for learning and teaching. Stakeholders felt that more effort should be focused on laggards because uptake of new technologies by teachers in European still remains limited; hence, the provision of computers at schools was again highlighted. However, experts suggested access to technology is one part of the story. There should be more effort at encouraging teachers and students to team up with other teachers and students and who could guide each other on how to use technology effectively, through peer learning and cooperation.

Another approach suggested by experts is to encourage laggard teachers to use technology for their own purpose, for instance, learning how to buy a cinema ticket. Once teachers get accustomed to doing simple things online, they are more likely to integrated technologies in their teaching. Teachers also mentioned that older teachers without children at home are more likely to be reluctant in using new technologies. This is why different training should to be provided addressing different teacher needs and this should not be necessarily bound to school needs.

Participation and involvement of students is also seen as an important evolution of current education networks. Teachers would like to see different technological deployments which would allow students to initiate their own projects. They envisage an application which would also allow teachers to teach virtually and to be able to share material online.

In Europe, diversity of languages and cultures means that at times networking and collaboration across countries can be challenging. However, stakeholders in our study did not feel that language was a barrier for collaboration. On the other hand, bi-lingual collaboration is thought of as an opportunity to learn new languages and for the students to be exposed to new cultures and for motivating them to learn a new language.

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Work on personas also brought about the subject of local recognition. It is often the case that through applications like eTwinning, teachers receive a great amount of international recognition, but on a local level, their work is not recognised. The message here is that while networks could enable education to go global, it is important that specific initiatives and networks are designed to enhance local collaboration. A major issue with such local recognition is that unless school or local authorities recognise the potential of networks for learning, the promotion of networks for learning will be limiting. One suggestion was to try and organise local awards, through which professional achievement will be recognised at a local level.

Views from Educational Experts

Another method selected for this project to elicit data on the future of teacher collaboration networks in 2025 was an expert workshop (Bacigalupo & Cachia, 2011). We gathered 20 experts for 1,5 days discussing the future of teacher collaboration networks. Participants were academics, researchers and practitioners (eTwinning project managers as well as eTwinning users, i.e. teachers). A workshop setting allows structured dialogue to take place. As discussed by Cagnin & Keenan (2008), this provides an ideal setting to conduct a foresight exercise. The aim of the workshop was to develop alternative future scenarios about teachers' collaboration networks in 2025.

Through this workshop, we have understood that experts believe that teachers' networks enhance the quality of teaching by enabling teachers to expand their capacity in a wide range of dimensions. These spam from subject matter knowledge to general pedagogy and pedagogical content knowledge, curriculum and educational context knowledge, knowledge about learners' characteristics, about educational aims, purposes, values and their philosophical and historical influences. However, to date we still lack empirical evidence showing the actual impact of teachers' networks on each of the above dimensions.

Existing applications like eTwinning are currently limited by walled-garden approach sustained by commercial networks, showing there is little interoperability with other social networks or web2.0 applications. Education experts claim that teacher collaborative networks should be aimed at developing better data portability across different networks and allow users to control their own personal information. Indeed, privacy issues constitute one of the main challenges to be addressed for a wider take up of social networking platforms in education and training (especially as the personal data of minors are often at stake) across Europe, and on other continents.

Given the positive impact of social learning networks, experts claim that the wider take up of such networks is a desirable goal, which should be actively pursued. During the workshop, a number of ways of achieving this end were identified. Once again, issues related to career recognition were identified. It is important that participation in collaborative network is embedded in a supportive organisational environment which formally recognises time invested in these collaborative networks. Another important issue that emerged which is important for the development of collaborative networks is the creation of organisational scaffolds to encourage and push take-up and participation. In concretely, the following areas were identified: teacher training, technical support, expert advice and in-built translation.

Networks also allow the promotion of collaboration between researchers and practitioners. Experts in the workshop suggested that such existing gap between research and practice could be improved through the use of networks, which facilitate communication, collaboration and dissemination of results across different educational stakeholders.

Concluding Remarks

In this article we have discussed the use and potential of networks in the context of teacher collaboration. We argued that while the future of learning has been discussed extensively, the role of teacher, and more specific the role of teacher collaboration through networks is perhaps less taken into account. We aimed to demonstrate the importance of current and future networks for teacher collaboration and to highlight key issues to be taken into account for the further development of teacher networking, both as a practice and as an object of study. In general, teachers themselves are quite positive on the use and potential of ICT-enabled networks for improving the quality of their work, and they would like to see a more widespread use of ICT for collaboration with their peers, especially across borders and cultures. However, recognition of this work as part of their continuous professional development is regarded as important, as well as support and training to deal with data management, privacy and security issues. There is also a strong need for pedagogic training which empowers teachers with the required ICT skills to help their students become digitally competent and for guiding students

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towards more exploratory and creative interaction with ICT tools. It should be highlighted that already today; the eTwinning platform proves to be quite a significant activity for those teachers involved. Openness, flexibility and interoperability are regarded to be important for the future development of teacher collaboration networks.

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