

Student Input – A Case of an Extended Flipped Classroom

Tone Vold, Svein Bergum, Ole Jørgen S. Ranglund, Linda Kjøning, Gisle Bakken and Aristides Kaloudis and Robin Braun

Abstract—The idea from Socrates about the knowledge being a part of the students’ knowledge base or ability of combining accessible knowledge forms the backdrop for how the most recent course in Knowledge Management (spring of 2017) was conducted. The course is 7,5 ECTS and the students are primarily adults in a worklife. The course is net and seminar based, with three seminars per semester. During the seminars the concept of Flipped Classroom is used. This means that the students are provided with a recorded lecture in beforehand and only highlights are presented. The rest of the time during the seminar is used to activate the students through tasks and problem solving. However, the tasks are not predefined and prefabricated. The way this course is structured, the students themselves are giving the input to the tasks and assignments. This is based on the idea that the students themselves, coming from a worklife where knowledge management is a part of their every day worklife, should reflect upon their own practice. Also, it is important to share knowledge and by utilizing each students own experiences it is possible to enrich the “database” of cases or tasks for the students to solve and work with in order to incorporate the new theory from the course curriculum. Basing the problem solving on student input provide the lecturer AND the students with a richer knowledge base and case portfolio. This does, however, require some effort from the lecturers side. The input from the students are generally key words and fragments. The session is facilitated by the lecturer, encouraging the students to bring forward own experiences or situations they would like resolved, either real or fiction. The key words and fragments are discussed amongst the students and the lecturer makes notes on a blackboard or on a digital canvas (MS PowerPoint or similar). The students are given a break and the lecturer collects the key words and synthesizes this into a case. Upon the return of the students, they solve the cases in groups and discuss possible solutions and what theory that apply to the different aspects of the case. Then a plenary session is facilitated where a suggested solution is developed. During a one-day seminar three to four cases are developed as a “joint venture” amongst the students and the lecturer. The feedback from the students is very positive. They claim that this way of working strongly contributes to an enhanced learning outcome. Some students also report on utilizing knowledge acquired at these seminars back at their workplace. These are some results from the survey and interviews. This research will be presented in detail in the paper. We will also elaborate on how this way of flipping the classroom can be utilized in different courses and areas.

Index Terms—flipped classroom, activating students, student input, utilizing previous experiences

I. INTRODUCTION

Tone Vold, Svein Bergum, Ole Jørgen S. Ranglund, Linda Kjøning are all with The Inland University of Applied Sciences, Norway
Gisle Bakken and Aristides Kaloudis are both from the Norwegian University of Science and Technology
Robin Braun is with the School of Electrical and Data Engineering, University of Technology Sydney, Australia

THE students attending the study program “Knowledge Management” at The Inland Norway University of Applied Sciences, are generally adults in a work life. The students have different motivations to join the study program. Some need the study points to finish a bachelor degree, some are sent by their employer to learn about learning organizations, some find the study program interesting and want to learn more about knowledge management. Common for all the students is a desire of utilizing the knowledge, either to build a career or to support their organization in a change process.

For the University, it is thus important to offer education that is perceived as useful and that can be utilized back in the students’ work places.

In order to support this learning process, it is important to take into consideration, how adults learn and how they can be activated in order to be able to bring the learning back to their work place.

“Flipped Classroom” has proved quite successful (Nematollahi et al. 2015, Braun et al 2015)[18, 4] with regards to activating students. Rather than lecturing during class and then giving the students “homework”, the students can watch the lecture at home and then work on assignments and tasks together with peers. By “flipping” the classroom, the teacher’s role is more of a facilitator.

However, by taking the flipped classroom a bit further, it is possible to utilize the knowledge that the adults already possess. Each of the students have their own unique backgrounds and their own unique experiences from both previous education and from their work life. Facilitating for a knowledge sharing process between the students can thus contribute to a social learning process that also provide the students with real life stories to analyse using the curriculum.

This paper present a study of two courses that have utilized the students own input towards mandatory assignments and towards their exam. The purpose of the study has been to see if this version of the flipped classroom will provide the students with a relevant and useful learning outcome.

Looking at education from a business perspective, our “customers” are primarily our students, secondly the organizations they work in. Activating the students this way and making them producers, can thus be seen as a co-creation process. And since it is value for our customers we seek to obtain, this can also be viewed as a value co-creation process.

In this paper we firstly present our theoretical backdrop for the study, then we argue for our methodological approach. The

analysis is presented before we conclude and suggest what can be researched further.

II. THEORETICAL BACKDROP

From theory on adult learning, we have that adults learn by being involved, engaged and activated (Knowles 1984, Knowles 1990, Knowles et al. 2005)[16, 15, 14]. However, in order to become involved, the students need to be enabled to come forward with their own experiences. Often the students have more experience with being taught rather than being the contributors. The facilitator's role then becomes important towards being clear about what is expected of the students. If the students are confused or uncertain about what they are to do or what is expected of them, this may obstruct the learning process (Kember et al. 1999)[13]. To create a common understanding and to facilitate the process of knowledge sharing, are the most important roles of the teacher.

Sharing experiences, and building knowledge based on own previous experiences was also recommended by the American pragmatist John Dewey (Dewey 1938, Dewey 2005)[9, 8]. Dewey also advocated experiencing as a tool for learning. It is possible to organize "organizational theatre" as a role play in the classroom (Johnstone 2007, Nissley et al. 2004)[12, 19].

Working with assignments and co-reflecting will also contribute towards learning. Reflection plays a vital part in learning (Moon 2004, Schön 1987)[17, 23] and to co-reflect with peers working on assignments can provide the students with excellent opportunities for knowledge sharing.

Students may sometimes have experiences that has not been discussed or can be described as tacit knowledge (Polanyi 1966, Von Krogh et al. 2000)[22, 26]. Sometimes it is difficult to access this tacit knowledge. Nonaka and Takeuchi[20] developed and described a model for sharing tacit knowledge; the SECI model. Through Socialization and Externalization it is possible to make tacit knowledge explicit. Combining this knowledge with existing knowledge and making it ones own (Internalization) will "complete the circle".

Orlikowski[21] claim that knowledge cannot be separated from human activity. Meaning that all knowledge work, for instance use, sharing, development and creation will be tied to activity. This is supported by Blackler[2] that states that knowledge is not something one has but is also tied to something that is being done.

Dewey also tie learning towards doing as he introduces "learning by doing" (Dewey 1938, Dewey and Bentley 1949)[9, 8]. Originally the term was "learn to do by knowing and to know by doing". Knowing and knowledge are thus tied to activity.

The purpose of learning should be to share and use knowledge back in the organization and the knowledge obtained should then be perceived as relevant and useful.

From a business perspective it can be looked upon as using a service. A service must have a value for the customer (Grönroos 2012, Grönroos 2015)[10, 11]. Also according to

Grönroos[11]. Value is a term it is difficult to define. It is however, possible to look at value as what they (the students) can bring back to the organization. The organization should thus be able to utilize the individuals learning and obtained knowledge.

Bringing the students into the process of taking part of the development of the assignments, would in the service management area be considered as "co-creation of value" as the students would be influencing the outcome. The experience would be tied to communication, resources and concept. The figure below show how co-creation of value can be depicted from a service management point of view.

However, this value co-creation will have a value also for the service provider (here: the university), see figure below:

The university can benefit from the process, by utilizing the students input and expand the number of real life (or similar to real life) experiences and assignments for new students. Both the teacher and the students will obtain more knowledge this way.

III. THE STUDY

The study was undertaken with students attending a study program called "Knowledge Management", a 30 study point part time program. The students of the years 2015/2016 and 2016/2017. The students in both groups had an introduction where the outline of the study was presented. Most of the first seminar was dedicated to explaining and developing the process of enabling the students to bring their experiences forward and tie this to the curriculum.

The students were then challenged with regards to contribute towards developing assignments. The students then provided suggestions for theme, area and part of the curriculum. The suggestions were written down on a blackboard. The students went out for a break, while the facilitator developed a short case based on the input.

When the students arrived back, they discussed the case in groups, and then in plenary. The facilitators' role then is to tie the case to the curriculum and have the students themselves be able to tie what they have brought forward to the curriculum of the course and study program.

The video streams that are recordings of lectures, the students are to watch themselves, preferable prior to the seminars. Only "high lights" from the seminars will be repeated during the seminars. The rest of the time will be spent facilitating for the students to co-create cases to solve that is tied to the curriculum "of the day".

For the mandatory assignment, and the exam, the students also get to suggest cases and content. The teachers' role is to facilitate for the process, and securing that the assignments – and exam – cover the curriculum in a satisfactory way.

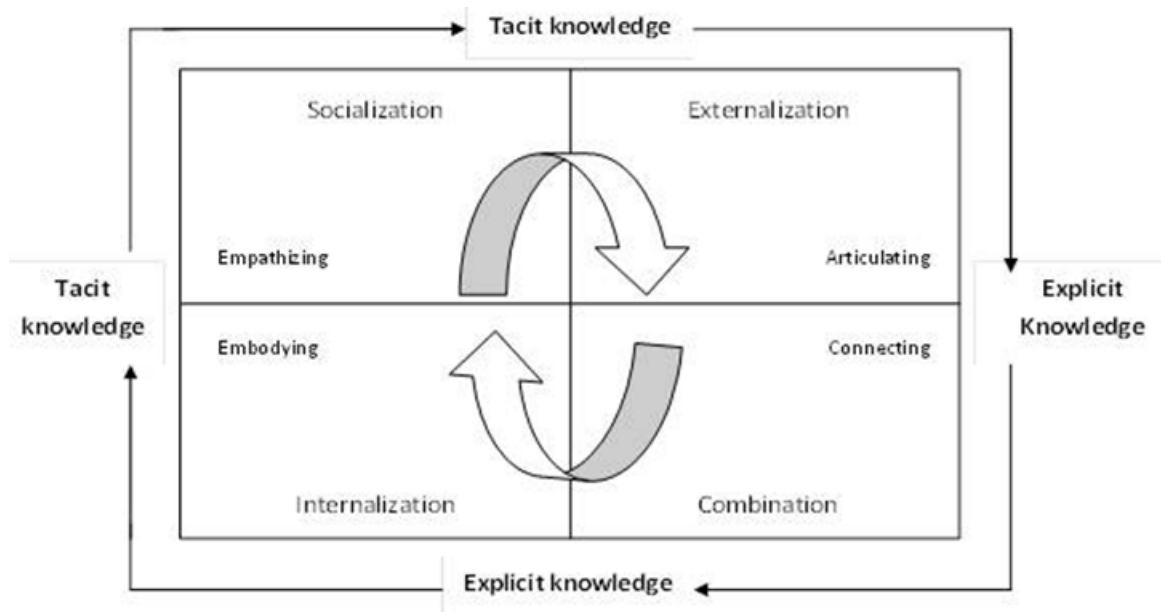


Figure 1. SECI model (Nonaka and Takeuchi, 1995)

IV. METHOD OF INQUIRY

The data was collected by doing group interviews (Brandth 1996, Dalen 2011)[3, 7] and surveys. This mixed methods approach (Creswell and Clark 2007)[6] provided us with data to show us if they had perceived this way of flipping the classroom had the desired effect.

Of approximately 140 students attended the courses (approx. 70 per cohort). Of the 70 per cohort approximately 35 – 45 took part in the seminars. The group interviews and observations were of the participants of the seminars.

The response rate of the survey was low – approximately 1/3 of the total amount of students replied. The results from the survey is only then giving indications and a further survey is needed to confirm the results.

V. RESULTS AND DISCUSSION

The results from the investigations show that when the students are explained how and why they should contribute and co-produce, most of the students that attend the seminars are active, engaged, and contributing towards creating assignments and cases. The facilitation has included enablement and empowerment through explanations about investments and returns (ROI) on input. When they understand and agree upon the learning process, they seem to invest in sharing their knowledge, much like Dewey[9] claimed.

The students also claim that the reflection processes the co-production of assignments triggers are supporting their total learning outcome. This is in accordance to what Cowan[5] and Schön[24, 23] claim with regards to reflection processes.

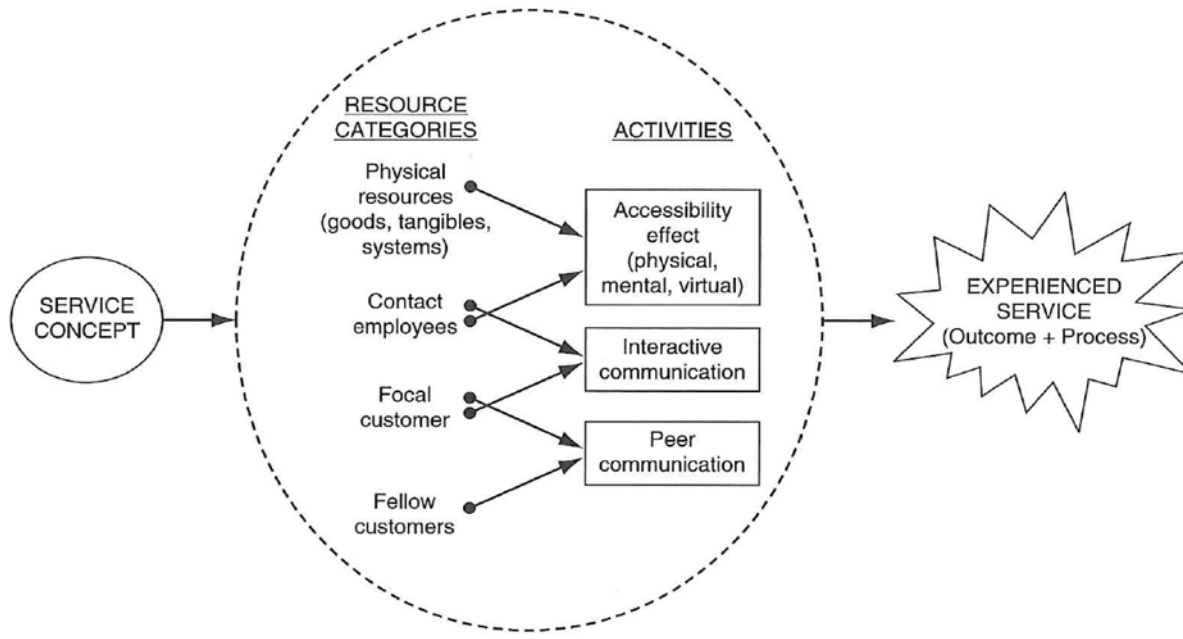
The students can produce up to 4-5 cases per day and they get to discuss different angles, both with their peers and in plenary with the teacher.

The students were asked what they used from their curriculum back at their work place, and how they had used it. It was important for us as lecturers to get their opinion about the usefulness of what they had learned. To be more concrete about what they had learned, we asked if they had been able to Upon being asked about how and what they have used back in their work life, they were to recognize single and double loop learning (Argyris and Schön[1] 1996) in their organization.

Even with a small percentage of respondents (1/3 of students), they are very positive and claim that it has been useful AND that they have been able to spot single and double loop learning back at their workplace.

We also asked about another part of the curriculum that include Peter Senge's five disciplines (Senge[25] 1992) and if they could recognise the different disciplines in their workplace. The results show that they could find and recognise what had been taught during class.

However, it is not only about how to recognize different theoretical issues. The usefulness of what they have learned during their study program and how they have been able to make use of what they have learned was also important to detect. They were asked about how they had not only recognized tacit knowledge (Nonaka[20] and Takeuchi 1995, Polanyi[22] 1966, Von Krogh[26] et al. 2000)but also how to retrieve this knowledge in their workplace. This would reveal if they had not only understood what tacit knowledge was, but were able to utilize the theory in order to make the tacit knowledge more explicit and become a part of the shared knowledge. This would also give an indication with regards to if, and how, they utilized what they had learned. What the survey does not include is whether this was a part of their prior knowledge and not what they had learned during the study program.



Note: The area inside the dotted circle denotes the value co-creation platform. Depending on how actively and successfully it is used by the parties, the co-created value effect differs.

Figure 2. Value co-creation: value for the customer (Grönroos 2015) Original source: (Grönroos 2012)

Regarding reliability and validity of the survey, the number of respondents is too low. However, the results are in coherence with what the group interviews and own observations show.

When interviewing the students in groups, most of the students attending the seminars, do claim to have gained the ability of recognizing different aspects in their workplace. They claim that practicing through solving assignments provide them with the ability of recognizing similar challenges in their own organizations. Also by “solving” the problems in class, have “provided them with tools to utilise back in their workplace”, according to the students. One example they give is about forming Communities of Practice for knowledge sharing. Another example is about entering the double loop regarding single/double loop learning in organizations and contribute towards making changes that will bring the organization into the double loop.

The results – albeit few – indicate a usefulness and relevance regarding utilization of the curriculum back in their organizations. Recognizing and acting according to “the text book” may have a connection to the training through making and solving assignments, as “the recognizing” and “the solving” is a major part of the activities during the seminars.

VI. CONCLUSION

As the survey lacks the number of respondents in order to state a fact, both the survey in combination with the qualitative data show that there is a potential for providing the students with an education that they perceive as useful. That they report on both being able to recognize different issues (like single and double loop learning) is important with regards

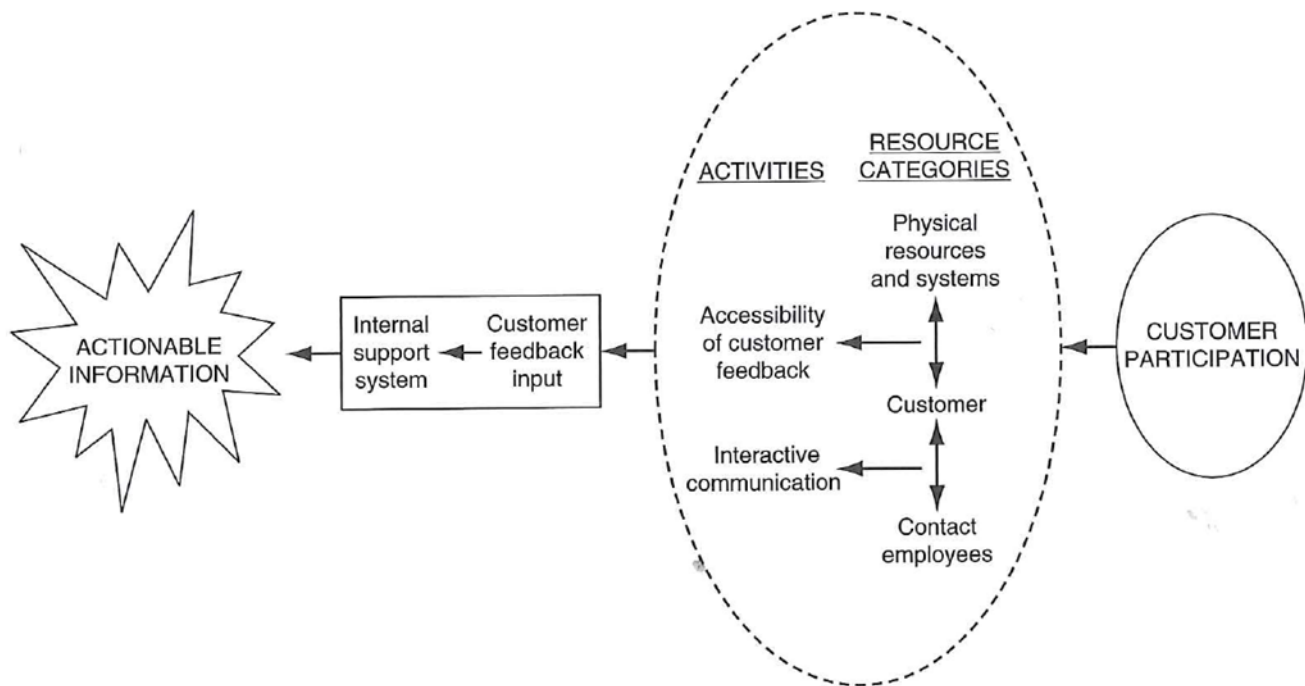
to being a contributor towards organizational learning. That some also report on being able to retrieve tacit knowledge and claim that this is due to their education, is promising. The social learning and building new knowledge with basis in their previous experiences seem to have provided the students with tools for contributing back in their own organization. It not only kickstarts a reflection process, which contributes towards the learning process, but it also enhances the usefulness and relevance of the education. The co-creation of value does seem to apply also with regards to viewing education as a service.

VII. FURTHER RESEARCH

With regards to further research, it will be important to investigate the influence on learning outcome throughout studying exams results over a longer period of time. Is it just a novelty or can we reproduce this perceived usefulness over time?

It will also be important to repeat investigations with the previous students, to see how the curriculum has matured over time. Have they been able to contribute towards organizational change and how much of that can be referred back to their education and the way this education was structured (with the value co-creation process)?

The business perspective of viewing education seems to contribute towards understanding why Flipped Classroom seems to work with regards to extended learning outcome from courses. We are encouraged to also view other courses within the University portfolio in a similar context and do further investigations in other study programs, which does not have a curriculum so focused on knowledge management issues.



Note: The area inside the dotted circle denotes the platform for value co-creation. The level of customer feedback input varies, depending on how effectively the firm manages to make use of it.

Figure 3. Value co-creation in service: value for the service provider (Grönroos 2015) Original source:(Grönroos 2012)

REFERENCES

- [1] Chris Argyris and Donald Schön. *Organizational Learning II. Theory, Method, and Practice*. Addison-Wesley Publishing Company, Inc., New York, 1996.
- [2] Frank Blackler. Knowledge, knowledge work and organizations: An overview and interpretation. *Organization Studies*, 16(6):1021, 1995.
- [3] Berit Brandth. *Gruppeintervju: perspektiv, relasjoner og kontekst*. Universitetsforlagets Metodebibliotek, Oslo, 1996.
- [4] Robin Braun and Zenon Chaczko. That flipping classroom-getting engineering students to be consciously competent on their own. In *Information Technology Based Higher Education and Training (ITHET), 2015 International Conference on*, pages 1–4. IEEE, 2015.
- [5] John Cowan. *On becoming an innovative university teacher: Reflection in action: Reflection in action*. McGraw-Hill Education (UK), 2006.
- [6] John W Creswell and Vicki L. Plano Clark. *Designing and Conducting Mixed Methods Research*. Thousand Oaks, California, 2007.
- [7] Monica Dalen. *Intervju som forskningsmetode*. Universitetsforl., Oslo, 2011.
- [8] John Dewey. *Democracy and education*. Courier Corporation, 2004.
- [9] John Dewey and Arthur F Bentley. *Knowing and the Known*. Beacon Press, Boston, 1949.
- [10] Christian Grönroos. Conceptualising value co-creation: A journey to the 1970s and back to the future. *Journal of Marketing Management*, 28(13-14):1520–1534, 2012.
- [11] Christian Grönroos. *Service management and marketing : managing the service profit logic*. Wiley, Chichester, 4th ed. edition, 2015.
- [12] Keith Johnstone. *Impro: improvisation and the theatre*. Methuen, London, 2007.
- [13] David Kember. Determining the level of reflective thinking from students' written journals using a coding scheme based on the work of mezirow. *International Journal of Lifelong Education*, 18(1):18–30, 1999.
- [14] Malcolm S. Knowles. *Andragogy in action*. Jossey-Bass, San Francisco, 1984.
- [15] Malcolm S Knowles, Elwood F Holton III, and Richard A Swanson. *The adult learner: The definitive classic in adult education and human resource development*. Routledge, 2014.
- [16] Malcolm Shepherd Knowles, Ed Holton, and Richard A. Swanson. *The adult learner: the definitive classic in adult education and human resource development*. Elsevier, Amsterdam, 2005.
- [17] Jennifer A. Moon. *A handbook of reflective and experiential learning: theory and practice*. RoutledgeFalmer, London, 2004.
- [18] Saman Nematollahi, Paul A St John, and William J Adamas-Rappaport. Lessons learned with a flipped classroom. *Medical education*, 49(11):1143–1143, 2015.
- [19] Nick Nissley, Steven S. Taylor, and Linda Houden. The politics of performance in organizational theatre-based training and interventions. *Organization Studies*,

25(817):22, 2004.

- [20] Ikujiro Nonaka and Hirotaka Takeuchi. *The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation*. Oxford University Press, New York, 1995.
- [21] Wanda J. Orlikowski. Knowing in practice: Enacting a collective capability in distributed organizing. *Organization Science*, 13(3):249–273, 2002.
- [22] Michael Polanyi. *Den tause dimensjonen*. Doubleday, New York, 1966.
- [23] Donald A Schön. *Educating the reflective practitioner: Toward a new design for teaching and learning in the professions*. Jossey-Bass, 1987.
- [24] Donald A Schon and Vincent DeSanctis. *The reflective practitioner: How professionals think in action*, 1986.
- [25] Peter M. Senge. *The fifth discipline : the art and practice of the learning organization*. Century Business, London, 1992.
- [26] George Von Krogh, Kazuo Ichijão, and Ikujião Nonaka. *Enabling knowledge creation: how to unlock the mystery of tacit knowledge and release the power of innovation*. Enabling knowledge creation. Oxford University Press, Oxford, 2000.