Mentors' Awareness of Effective Consultation Skills in a Teaching Portfolio Workshop: A Text-mining Approach

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Abstract: The aim of the present study is to uncover mentors' awareness of effective mentoring skills, before and after supervisory experiences of mentees' teaching portfolios development. In the context of developing mentors' communication skills and reviewing strategies through the course of a three-day intensive workshop, six consecutive meetings were conducted. The data of discussion and reports among eleven mentors (three novice mentors, four experienced mentors, and four supervisory mentors) were recorded and analyzed by quantitative content analyses method using Tiny Text Mining tool (TTM). In collected textual data, 1484 different types of words were found in reflection on their consultation with their mentees in an intensive three-day workshop. The results showed mentors' images included the importance of communication skills, the perceived degree of difficulties of consultation, complex and challenging process, but also mentoring effectiveness as well.

INTRODUCTION

Issues related to professional development are receiving increased attention, especially since teachers at all levels are realizing the centrality of their roles to school reform and improvement (Burbank & Kauchak 2003).

In response to these challenges, some educational institutions have been expending considerable resources and developing new curricula, assessments, and technologies to foster integrative learning (Huber and Hutching 2005; Zwart et al. 2008). According to Burbank and Kauchak (2003), collaborative action research, which combines groups of teachers in the design, implementation, and evaluation of action research projects, provides a mechanism for professional development. With regard to learning for novices and experienced teachers, these trials are characterized by the pedagogy of investigation that overcomes the disconnection between acquired knowledge in university coursework and applied knowledge in the classroom. Through generated action research, collaborative knowledge sharing between participants offers opportunities for professional linkage and reflective discussion (Burbank & Kauchak 2003, Rathgen 2006).

In various studies on educational improvement, the term "learning community" has been used to mean "a relatively small group that may include students, teachers, administrators, and others who have a clear sense of membership, common goals, and opportunities for extensive face-to-face communication" (Baker 1999). Cox (2001) defined a Faculty Learning Community (FLC) as a cross-disciplinary faculty and staff group of six to 15 members who engage in a collaborative program with frequent activities.

Cox (2003) also studied the learning experiences in FLCs and categorized two different learning communities: cohort-based and topic-based. Cohort-based FLCs address the teaching, learning, and developmental needs of a cohort of faculty. The curriculum of FLCs is shaped by the participants to include a broad range of teaching and learning areas as well as various topics of interest. Moreover, each topic-based FLC includes a curriculum designed to address special campus teaching and learning needs, issues or opportunities. These FLCs also provide opportunities for learning across all faculties, but with a particular theme.

TEACHING PORTFOLIO WOERKSHOP FOR PROFESSIONAL DEVELOPMENT

Since 2009, Osaka Prefecture University College of Technology has conducted an intensive three-day seminar guided by mentor teachers to create teaching portfolios. It is designed to engage mid-career faculty members in the theory, practice, and scholarship of teaching and learning and to establish and support a

faculty community of practice that provides mentorship and leadership in higher education.

Faculty participants enrolled in this seminar reflect on their own teaching practice through the creation of a teaching portfolio. They collaborate with a teaching mentor, and hold one-on-one meetings with their mentors at least twice a day and critically examine and discuss scholarly topics on teaching and learning in their own disciplines. Their mentors also have opportunities to consult with a supervisor who has vast experience in teaching and mentoring different levels of trainees at peer-support "mentor meetings." According to the study conducted by Ramani et al. (2006), some mentees' problems may overstep the boundaries of the usual mentor-mentee relationship and discussion. In such cases, mentors should not be forced to take on roles in which they do not have expertise but should be supported by a network of specialists and other mentors.

These influences on the learning of faculty members are thought to come from three areas: (a) the processes involved in portfolio creation, (b) the mentoring and collaboration that is often associated with the process of portfolio creation, and (c) the feedback given on the completed portfolio (Zeichner & Wray 2001, Wolf 1994).

In this intensive seminar at Osaka Prefecture University College of Technology, the author focused on the second area mentioned above: the mentorship between mentors and mentees and supportive collaboration among mentors. The author also developed a collaborative FLC (Kato 2013, 2014 & 2018) to strength mentorship between mentors and mentees, and to identify the requirements for supporting their professional development.

Mentorship in an intensive workshop

The most effective method of optimizing faculty development practices is peer mentoring based on real-world practices that may enable faculties to examine their own practices, reflect on their methods, and socialize with mentors.

Peer mentoring activities have been implemented to broaden teachers' ability to take control of their professional lives and create opportunities to publicize their views regarding educational expectations (Clarke & Hollingsworth 2002, Zwart et al.2008).

This working-together approach enables teachers to move from a passive role to a truly collaborative one. To encourage this type of professional collaboration, participants use alternative forms of inquiry, such as conducting peer observations, reporting on their own practices, and making collaborative reflections in the development of teaching portfolios. The empirical evidence on peer mentoring shows that the professional development of teachers can be improved through experimentation,

observation, reflection, exchange of professional ideas, and shared problem solving (Zwart et al. 2008).

Mentoring is often identified as an essential step in achieving career success. In the context of education, it is commonly accepted that a mentor teacher leads, guides, and advises another teacher who is less experienced in a work situation characterized by mutual trust and belief. The emotional and social aspects of the mentoring process must be respected when establishing a mentor program.

Researchers believe that mentoring can be a valuable process in educational reform for novice teachers as well as experienced professionals. Formalizing the mentor role for experienced professionals creates another niche in the career ladder for faculty members and contributes to the professionalism of education (Koki 1997).

Nevertheless, not all mentors recognize the value of the mentoring relationship. Since mentors and educators in specialized areas rarely receive training on the mentoring process, they are often ill-equipped to face challenges when taking on a major mentoring responsibility (Ramani et al. 2006). The actual learning processes of individual faculties that occur as a result of peer mentoring have not been described in detail (Castle 2006, Clarke & Hollingsworth 2002, Zwart et al.2008).

Previous qualitative research conducted by the authors (Kato, Higashida, & Kaneda et al 2018) revealed the following five points:

- Mentors used effective communication techniques in a timely fashion to help their mentees solve their own problems.
- Novice mentors were anxious and hesitated to ask questions or give advice to older mentees due to the imbalance in the relationship between the mentee and mentor.
- Mentors directly experienced various teaching methods, alternative modalities of learning, and styles of teaching and learning that affected students' achievements.
- Mentors shared experiences with their mentees and felt empathy with them because of their experience mentoring.
- Novice mentors benefited from other mentors' actual expertise and management style in peer-mentoring conferences, which offer on-the-job-training for new mentors.

Reserch questions

The aim of the present study is to investigate mentors' awareness of effective mentoring skills, before and after supervisory experiences of mentees' teaching portfolios development, by comparing the results of previous qualitative research conducted by the authors (Kato, Higashida, & Kaneda et al. 2018).

The main aim of this study is to define how mentors perceive good mentorship and how

mentoring experiences influence mentors' awareness toward communication skills and techniques as good mentors.

Within the scope of this main aim, answers to the following research questions were sought:

1. What did they do in their role as a mentor?

2. What kind of problems and difficulties did they experience during the mentoring?

3. How did they feel about their own development as a professional or a mentor?

4. What did they think about the peer-mentoring conferences after consultation with their mentees?

RESERCH DESIGN AND METHODS

Participants

Nine mentors and two supervisors participated in this project and were divided into two groups: group A and group B. Table 1 presents the distribution of the participants according to their mentoring experiences, academic backgrounds, and affiliations.

Among the eleven mentors included three novice mentors (D, E, and K) who had never worked with mentees before, three experienced mentors (C, H, I, and J), and four supervisory mentors (A, B, F, and G) who mainly designed this workshop and leaded peer-mentor conferences .

Table 1. Mentors' profiles.

Group	Mentor (Age)	Mentoring experience	Academic background
Group A	A* (Fifties)	More than five times	Chemistry
	B** (Forties)	More than five times	Chemistry
	C (Forties)	Four times	Mechatronics
	D (Forties)	First time	Mechanical Engineering
	E (Thirties)	First time	Education
Group B	F* (Fifties)	More than five times	Educational Technology
	G** (Fifties)	More than five times	Mechatronics
	H (Fifties)	More than five times	Mathematics
	I (Forties)	More than five times	Information Science
	J (Forties)	Three times	Chemistry
	K (Thirties)	First time	Chemistry

(* supervisor, ** coordinator)

Data Collection

Each mentor group separately held six mentor meetings and discussed how to support mentees and promote collaborative mentorship for creating teaching portfolios. Two-group discussions were conducted and recorded with the participants' permission. Group A recorded discussions and reports at all six peer-mentor conferences, but group B recorded their discussion only during the final meeting, which was held on August 10, 2016.

In the group discussions, a supervisor acted as a facilitator and encouraged the participants to reflect on their mentoring process and changes before and after the mentoring experience. The interviewers primarily addressed the mentor's perceptions of his or her learning from the mentoring process and asked the mentor to describe the mentoring process.

The author wrote the transcripts of the audio-recorded data after the recording.

Data Analysis

In the context of developing mentors' communication skills and reviewing strategies through the course of a three-day intensive workshop, the data of the final discussion and reports which was held on August 10, 2016 analyzed by quantitative content analyses method using Tiny Text Mining tool (Matsumura & Miura 2014).

RESULTS

Extracted words on Mentoring Experiences

The table 2 showed the number of extracted words of three different groups (novice, experienced, and supervisory). In all, 2434 words were extracted from the data (40:58 min) of group A and the data (63:25 min) of group B. In total, 5027 words were extracted from the transcripts of two final meetings and 1484 different types of words were found in reflection on their consultation with their mentee in an intensive three-day workshop.

Table 2. Number of extracted words.

Group	Num.	Num. of case	Total Num. of words	Different Num. of words
Novice	3	55	767	292
Experienced	4	214	2434	649
Supervisory	4	227	1826	543
Total	11	496	5027	1484

The table 3 indicated the most frequent words , which appeared among three different groups (novice, experienced, and supervisory).

General verbs such as do be, and say were most frequently counted over three groups. The peculiar nouns that included self, timing, and sharing were appeared on the reports of experienced mentors and supervisors because they could explicitly reflect and

explain their difficulties and satisfaction with their mentees during their consultation. Additionally, they frequently asked supervisors' opinion and ideas for effective questions to promote mentees' reflections.

On the other side, novice mentors were apt to hesitate to explain their experience to other mentors and supervisors. They often confessed their worries and troubles about their mentoring style and communication skills.

Table 3. Most frequent words (top 30) in three groups.

Word	Nov-ice	Expe-rienced	Super-visory	Total
する(do)	41	134	105	280
ある(be)	32	108	84	224
言う(say)	40	130	53	223
思う(feel)	23	82	42	147
タイミング (timing)	18	54	35	107
自分(self)	18	52	28	98
それ(it)	16	49	29	94
共有(share)	9	60	23	92
私(I)	15	51	25	91
いい(good)	16	41	31	88
やる(do)	4	42	41	87
メンター(mentor)	10	13	56	79
聞ける(can hear)	6	44	27	77
なる(become)	15	39	18	72
何(what)	8	31	31	70
ない(nothing)	13	33	17	63
すごい(great)	1	26	25	52
感じ(feeling)	2	38	9	49
人(person)	3	29	15	47
書く(write)	8	22	17	47
できる(can do)	10	24	9	43
メンタリング (mentoring)	7	14	21	42
今回(this time)	3	15	24	42
メンティー(mentee)	14	10	15	39
違う(differ)	0	14	18	32
先生(teacher)	4	24	3	31
ほんとう(true)	9	12	10	31
教育理念(education-al philosophy)	9	10	12	31
学ぶ(learn)	4	19	7	30
考える(think)	3	13	13	29

Elements of Good mentorship

The author selected 49 items over 15 appearances in total numbers, and used square Euclidian distance to calculate the distances of elements and link the clusters. She could specify whether she wanted to output the proximity matrix and the predicted cluster membership of the cases. Then, she moved onto

Ward's method to maximize the significance of differences between clusters by using SPSS.

As a result, the diagram in Figure 1 was a horizontal hierarchical tree plot, which showed mentors' images toward mentoring experiences in this workshop.

Four clusters included (1) importance of communication skills, (2) mentor excellence, (3) effective mentoring, but also (4) challenging process as well.
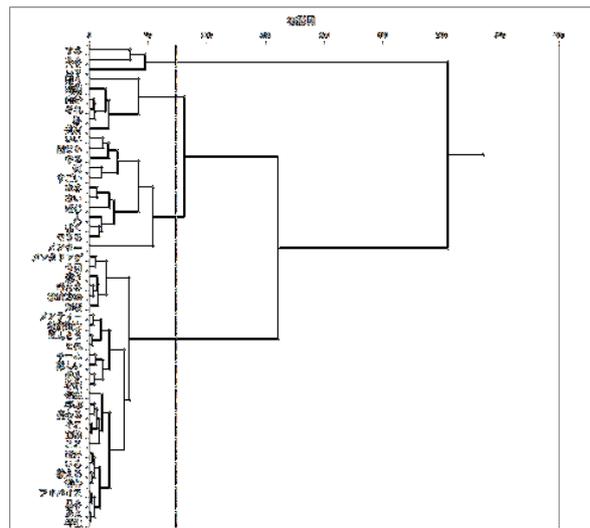

Figure 1.Clustering analysis.

Table 4. Average of four clusters in three groups.

Clusters	Novice	Expe-rienced	Super-visory
Cluster1: communication skills (3 words)	37.7	124.0	80.7
Cluster2: mentor excellence (12 words)	12.0	45.4	32.8
Cluster3: effective mentoring (6 words)	8.5	30.8	14.2
Cluster4: challenging process (28 words)	5.0	11.8	8.8

A chi-square test for independence was conducted to see whether distributions of categorical variables differ from each another. The result showed there is no significant relationship among variables (χ^2（6）=2.041, n.s.).

Then, it indicated that mentoring experiences did not influence the awareness of effective communication skills for mentors.

DISCUSSION

This study was designed as qualitative and exploratory, intended to define how mentors perceive mentorship as professional development and how they would evaluate their own mentoring experiences. The author focused how mentoring experiences effects the awareness of effective consultation skills as a mentor. Through a three-day teaching portfolio workshop at Osaka Prefecture University College of Technology, discussions at the final meeting were analyzed using the TTM method and identified the difference among three groups, novice, experienced, and supervisors.

Comparing to the results of the previous research (Kato, Higashida, & Kaneda et al. 2018), the author integrated qualitative data analysis with theoretical coding and quantitative content analysis using TTM method, which proved efficient and valid as theorization from the relatively small-scale data provided by the 11 mentors.

The qualitative content analysis revealed the following two points:

First, with regard to the first research question on the definition of good mentorship, the results of the second and third cluster showed that asking questions in a timely fashion and taking an accepting attitude toward their mentee were effective. Relative to the third cluster [effective mentoring], mentors recognized the importance of helping mentees identify their problems. They concluded that their role as mentors was to help their mentees find new solutions in their practices. This result was corresponded with the previous qualitative research conducted by the author (Kato, Higashida, & Kaneda et al. 2018).

Second, the statistical analysis on four clusters, mentoring experiences did not influence the awareness of effective communication skills and mentoring experiences.

Actually, several mentors, regardless of mentoring experiences reflected their worries and troubles during consultations.

This study was designed to investigate the results of qualitative study conducted by the same author. The results of this quantitative research was corresponded with the previous qualitative research and its findings strengthened the previous insights.

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