

Impact on Teaching: Consistent Knowledge Development, Reflection and Practice

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Abstract. Application of professional knowledge is developed and practiced through teacher experiences and reflection. If we want to understand the practices of teachers' teaching gifted students, it is essential to understand the development of practices with gifted students and their professional knowledge development as active practitioners. It is imperative to know what diverse factors lead to their own professional knowledge in their unique situations. The teacher is one of the most important factors in providing high quality of education. Gifted education is no exception. Teachers of gifted students should know how to implement interventions with diverse learners and learners with unique needs. This research is a case study of two earlier career teachers in gifted education participating in professional development. We focused on how teachers' needs combine with practicum experience result in individual unique professional knowledge. The results are as follows. The first, even though they are both beginning teachers of the gifted, their development phases as teachers of the gifted were different depending on their previous experience. The second, there different previous experience and practicum experience determined the direction and degree of the development of professional knowledge. The third, unique contexts are different from regular teacher, especially, isolation was a big barrier for their development. The last, their development was different due to their passion about teaching gifted students and continuous reflection on their practice and students reaction were strong motives for the development of their professional knowledge.

Keywords: Knowledge; Practical knowledge; Experience; Interest; Reflection; Application

Introduction

The teacher is one of the most important catalysts in providing high quality of education. Much research has verified that student achievement is strongly influenced by teachers' background in content areas and by classroom practices, both of which are related to teachers' professional development (Missett,

Brunner, Callahan, Moon, Azano, 2014 & Hair, Black, Babin, Anderson, 2010 & Field, 2013). Gifted education is no exception. Teachers of gifted students must know how to provide enriched and/or advanced academic content to a diverse population of students possessed of unique academic and socio-affective needs.

Most researchers in gifted education acknowledge that teachers' are an important catalyst in the talent development process (Rubie-Davies, 2010 & Gagné, 2003). Little research is available, however, to develop a comprehensive understanding of teachers of the gifted. The research that is available primarily focuses on characteristics of effective teachers' from the perspective of process-product research. It is important, however, to better understand the teachers as active practitioners whose beliefs and practical knowledge play a critical role in classroom practices (Rubie-Davies, 2010 & Jarvis & Henderson, 2015 & Johnsen et al, 2002).

Professional area specific expertise content knowledge is the 'content applicable knowledge of teachers implemented as an outcome of their experiences as teachers and their reflective practices on these experiences (Baudson, Preckel, 2013). Therefore, the role of both teacher education and professional development should be to support teachers' learning, not only about theory, but also about theory-into-practice, or teachers' internalization of theory and developing practical knowledge. Most programs in teacher education have adopted the practicum as an early experience in the coursework required of future educators; as well, professional development in gifted education recommends a practicum experience to prepare educators to work in the field.

Facilitating an effective practicum experience in gifted education, however, is an exercise in complexity. Teachers earning an endorsement in gifted education are typically certified as general education teachers. This means that they have internalized individual beliefs and practical knowledge not only about their specializations in general education, but also about gifted students and their needs. Their beliefs and practical knowledge have developed most often through exposure to gifted students in their classrooms and through casual conversations with other educators, but without systematic exploration of the research in the field of gifted education. The practicum experience must facilitate widely varying experiences, respectfully exploring the pre-existing beliefs and practical knowledge held by professionals with established attitudes, dispositions, and previous informal and formal educational experiences. The experience must also honour the different professional needs that educators bring to practicum, depending on their prescribed roles in gifted education, school contexts, and the developmental levels in their careers. In essence, the direction and the degree of development of practical knowledge during the practicum experience must be different for each professional seeking to better understand and implement interventions that will address the needs of gifted students (Davis, Rimm & Siegle, 2011 & Jung, Barnett, Gross, McCormick, 2011)

Professional knowledge

Professional content knowledge has been investigated and evaluated as both comprehension and interpretation of contextualized and complex teaching (Berman, Schultz, & Weber, 2012 & Bianco, Harris, Garrison-Wade, Leech, 2011 & Loughran, 2002). The conceptualization of application of content knowledge is addressed in research to focus on a specific kind of knowledge. It describes teachers' application of content knowledge of specific situations and the functional quandaries they face in carrying out purposeful action in those settings. Professional content functional knowledge guides a teacher's actions in application (Jones, Miron, Kelaher-Young, 2012). This knowledge is gradually built from personal and practical experience; is not readily articulated by the teacher; and is used in complex ways during the processes of planning for and executing teaching activities in addition to understanding the decisions that were made earlier. It consists of factual or declarative knowledge, as well as strategic or procedural knowledge and beliefs, including norms and values. Specific school context plays an important role in developing functional and realistic knowledge. (Castro, 2010 & Lynn, 2002)

Teachers' professional knowledge is not 'formal knowledge for teachers' that is primarily produced and disseminated by researchers but rather, 'teachers' knowledge' that is generated by teachers themselves as an outcome of their occurrences while teaching as their introspection on these experiences (Davis, Rimm, Siegle, 2011). The understanding of professional knowledge includes three important implications. The first is that a teacher's role as an active practitioner is of primary importance for generating personal practical knowledge. The second implication is that teachers' reflections about the nature of their professional experiences determine the development of their practical knowledge. The third is that every teacher has a different level of professional knowledge and has different beliefs because of their individual reflections on varying experiences in their lives, both personal and professional. Even experienced teachers can articulate professional skills that they want to strengthen, depending on their roles, their school contexts, and the developmental levels in their careers.

Research on the development of professional knowledge has explored both pre-service teachers and beginning in-service teachers (Jones, Miron & Kelaher-Young, 2012 & Kagan, 1992). Most pre-service teachers' initial content knowledge about practice is theoretical and not intuitive because it is learned outside the context of personal experience and has not yet been experimented with through praxis. Such content understanding is intellectual and will not impact practical application until it is experimented with and modified through reflective practical applications Rubie-Davies, (2010). A traditional practicum and/or the practice teaching experience can give pre-service teachers authentic practice to test their conceptual knowledge and develop their own professional knowledge through teacher education.

Professional development in gifted education is different. The education of in-service teachers of the gifted most often relies on professional development

experiences; those who have experience in the classroom will have different needs from pre-service teachers, who have conceptual knowledge but not experiential practical knowledge. Most of those participating in professional development experiences in gifted education are classroom teachers, although a lesser number of in-service educators with some experience teaching the gifted are also involved in professional development experiences in gifted education. Regardless of background, in-service teachers already have already internalized individual beliefs and some practical knowledge about gifted education; even those teachers in the general education classroom likely have experience working with gifted students.

Another challenge in the development of professional knowledge among teachers of the gifted is their situational context as staff members within their school districts. Teachers of the gifted frequently are disconnected from classroom teachers, without a circumscribed role in either a specific grade level or a particular field of study. Siegle, et al, (2014) reported that many teachers of the gifted who participated in professional development experiences felt isolated. There are some teachers that have less understanding about gifted education and it made it challenging for them to collaborate with colleagues and administrators about giftedness. This absence of peers with whom they can reflect on their unique experiences with gifted students likely plays a negative role in developing professional knowledge among teachers of the gifted.

Finally, the beliefs and professional knowledge among teachers of the gifted will vary widely, depending on their level of experience in the general education classroom, or their absence of any teaching experience before an assignment in gifted education. Their conceptualization of teaching will differ based both on their disciplinary preparation and the grade levels for which they are licensed. Importantly, educators assigned to work with gifted students often must adapt to variable professional assignments, from coordinator for gifted programs to teacher of the gifted in programmatic settings that can change from year to year; these flexible professional assignments require an equally flexible approach to internalizing practical knowledge. The development of professional knowledge among teachers of the gifted will require divergent paths. In order to better understand teachers of the gifted, it is critical to gain greater understanding of the efforts made by individual teachers as they pursue their development of practical knowledge in their unique situations.

This case study elaborates on the practicum experiences of two teachers assigned to positions in gifted education in their respective districts. Both teachers were new to their assignments to gifted education, and although both participated in similar professional development experiences, each demonstrated a unique path in the development of professional knowledge. Through an examination of the teachers' experiences, this study explores the factors affecting the development of professional knowledge in gifted education.

Methodology and Participants

The research study design chosen for this study can be categorized as 'descriptive study' (Yin, 2014 & Miriam, 1998). This qualitative approach, as

described by Merriam (1998), states that it is “useful, though, in presenting basic information about areas of education where little research has been conducted” (p. 38).

Merriam reiterates: “case study is appropriate when the objective of a program is to develop a better understanding of the dynamics of a program. When it is important to be responsive, to convey a holistic and dynamically rich account of an educational program, case study is a tailor made approach” (p. 39). The research design below demonstrates how the research was conducted.

Table 1: Research Design

		Phase I	
Input to Teachers of Gifted Learners	A. Readings : Gifted child educator/parent of a gifted child/gifted child advocate	A. 1. Reading Reflections: For each reading.	Output of Teachers of Gifted Learners
	10 hours of Reading	A. 2. Development of Practicum Goal/s	
	B. Readings: Selected readings on Practicum Goals/s based on individual learning need.	B. 1. Reading Reflections: On Selected readings provided for practicum goal/s based on individual learning need.	
	5 hours of Goal based selected readings		
	C. Observing: In a class where gifted students’ are being taught in a content area the teacher is not licensed to teach.	C.1. Maintaining a journal log documenting 15 hours of observing in a gifted students’ class.	
	15 hours of observing	C.2. A final project is developed which addresses the practicum goal/s	
		15 hours of project development	
		Phase II	

This research study is a case study of two teachers new to gifted education. Both participated in a 16-week practicum experience; the practicum was the capstone of a 12-semester-hour endorsement program in gifted education, completed after both teachers had been assigned to work with gifted students. The research focuses on the ways in which the teachers’ needs combine with their practicum

experiences and result in individual and unique practical knowledge developed by each teacher to help each achieve greater success in their personal settings. By exploring each case, the research will suggest the factors that most affect the direction of the development of personal practical knowledge.

The research participants were teachers who teach gifted learners in a Midwestern state in USA. The research begins with the participants receiving the practicum readings and reading reflection forms by mail with an introductory letter. The introductory letter describes the requirements for this project. A meeting is conducted by the Principal Investigator soon after the introductory letter and the readings have been received by the participants. All the readings and reading reflection are also posted in an online site for participants to obtain the information they need. The Principal Investigator calls or emails the participants to address any questions/s. The need to develop practicum goal/s based on a need the participants sees in an area of choice as a gifted educator, parent of a gifted child or a gifted child advocate is communicated with the participants. As soon as the Principal Investigator is informed of goal/s "other" readings for the project which support the practicum goal are located. The required readings make up 10 hours of reading and they need 5 hours of more reading to make the 15 hour need. As well, the participants need to demonstrate a log for 15 hours of observing in an area they are not licensed to teach. Also, they have 15 hours of working towards a final project which supports their practicum goal.

The salient characteristic of this graduate-level practicum study is the personalized nature of each teacher's experience. Teachers determine their own goals, based on their perceptions of personal, student, school, and/or district needs. Their goals and subsequent products address these perceived professional needs; as well, they impact on the development of their practical knowledge. Practicum participants react to assigned readings, as well as to individualized readings selected to help them achieve personal goals; the readings and reading reactions, including summaries and evaluations of major themes and applications of content to students and schools, also contribute to the development of practical knowledge. Finally, focused observations of classes of gifted students or hands-on work with gifted students are required. The observations enhance the participants' understanding of gifted students, of curriculum that other professionals believe to be appropriate, and of teaching practices that peers utilize. During practicum, teachers synthesize new understandings in gifted education from the readings, reflections, goals, and observations, reframing their own practices with gifted learners.

Teachers are required to observe gifted students or work directly with gifted students at the level for which they are not licensed (certified) to teach. In other words, elementary teachers need to observe or work in secondary settings and secondary teachers need to focus on the elementary school. This requirement was established by a Midwestern State, since the endorsement in gifted education is a K-12 endorsement, allowing teachers who are likely certified at one level or the other to work with gifted children of any age. The requirement is productive, as well, because it serves to broaden the educational experience

and deepen the overall understanding of gifted education. Practicum participants could explore their district's K-12 gifted programming opportunities, or at least become more familiar with the curriculum options at levels before or after the levels with which they're most familiar. They could gain greater awareness of the different learning needs of gifted students of varying ages, and they could develop expertise in requisite teaching strategies.

Nicole is a full-time teacher of the gifted in an "Extended Learning Program" (ELP) in two elementary buildings. She is in her third year of teaching at the elementary level, with assignments to work with gifted and talented students and no prior experience teaching general education students.

Camie has been a full-time classroom teacher for 17 years. When she began her practicum experience, she was teaching speech, debate, contemporary literature, drama, and sophomore literature. She had the opportunity to teach the Talented and Gifted (TAG) 10th-grade English class, serve as the TAG sponsor for various activities, and coordinate two classes allowing TAG students to complete independent projects. Through that experience, she became interested in earning her endorsement in gifted education. She had an opportunity to teach 'Letters about Literature' TAG elementary students in two different elementary schools as a practicum experience.

Work with or observations of gifted students are essential to facilitate participants' self-evaluation in terms of both knowledge and beliefs about gifted education and gifted students. Time focused on conscious observation provides the lens to reframe existing beliefs. Teachers who have substantial teaching experience in the general education classroom, for example, have internalized an extensive inventory of effective practical knowledge. Because they might be complacent about the feasibility of translating successful general education practice to the gifted classroom, they need to envision effective practice in a novel setting and reframe their understanding and practice.

Maintaining a journal related to the practicum experience also is required. Every week, practicum participants are provided different prompts; they respond utilizing an online platform that allows asynchronous response and discussion. The prompts encompass four categories, including reflection on and evaluation of personal practice during the practicum semester; individual learning from the practicum experience; emerging understanding of best practices to support gifted learners; and perceptions of barriers to improving practice. The sharing of experiences, challenges, and unfolding understandings in gifted education facilitates teachers' reflections and reframing of practical knowledge, as well as providing both a learning community and a sense of collegiality.

Independent projects culminate the practicum experience as participants synthesize information from readings, reflections, online discussions, and observations of / hands-on work with gifted learners, and fulfil their goals for the course. These independent projects encapsulate the goals that teachers envisioned for their gifted students, for parents, for their colleagues, or school

districts. They range from new plans for units of study to well-articulated gifted programs for districts; from letters to parents detailing a program's identification policy to PowerPoint presentations for staff in-services; from bibliographies for a new bibliotherapy curriculum to the framework to help gifted learners imagine and enact service learning in their communities; from articles articulating the concerns about gifted boys and their choices to withdraw from gifted programs to plans for panels of successful women to interact with adolescent gifted girls about dreams for the future.

The most research on gifted students teachers' functional content knowledge is existent in narrative and descriptive examination illuminating teacher's stories, including the ways teachers' discover usefulness of experiences and events they come across in their own teaching practice experiences (Siegle, Moore, Mann, Wilson, 2010). Teachers' written reflections about their teaching are one of the instruments facilitating greater understanding of teachers' evolving thinking and practice in the classroom; as well, the act of writing reflections serves as a catalyst to activate teachers' prior understandings and help them internalize new ways of thinking (Wentzel, Battle, Russell, Looney, 2010). Staiger, Rockoff, (2010) emphasized that experience alone does not lead to learning, but rather reflection on experience is essential. Reflection about teaching experience is effective when it leads the teacher to make meaning from practice in ways that enhance understanding, enabling the teacher to assess settings and events from a variety of viewpoints. Effective reflective practice enables the teacher to frame and reframe professional activity and to comprehend his or her own 'wisdom-in-action'. In essence, effective reflective practice encourages the explicit articulation of professional knowledge (Szymanski, Thomas, 2013).

Just as teachers need opportunities to reflect on their experiences in order to develop a repertoire of practical knowledge, an analysis of the teachers' experiences can help researchers better understand the ways in which teachers internalize implicit theory and subsequently articulate practice. This research explored the ways in-service teachers reflected on their experiences during a practicum experience required for endorsement in gifted education. During the practicum, the teachers considered their practice from various points of view in gifted education.

In summary, teachers are required to examine, evaluate, and reframe their beliefs, knowledge, and practice continuously through the practicum experience. Participants unpack implicit understandings and explore them through journaling. They determine their personal interests for further research in the field of gifted education, and they react to and apply new knowledge. They dedicate time to conduct focused observations of or work with gifted students, and they have an opportunity to explore the familiar in unfamiliar ways. Finally, they establish goals for themselves, and they create professional independent projects to share with practicum colleagues, as well as with authentic audiences. Time for and encouragement of reflection is the major theme throughout practicum that serves as the catalyst for the development of

practical knowledge and the reconstruction of personal understanding to develop new ways of thinking about gifted education.

Data collection and analysis

In this study, all components of the practicum experience were used to investigate teachers' evolving professional knowledge. Analysing teachers' reflections in response to journal prompts was the primary strategy utilized to trace the development of teacher's professional knowledge. Journaling was especially critical in terms of understanding teachers' perceptions of professional growth through the practicum experience and their evolving thinking about gifted education. Reactions to readings were used to determine beliefs and knowledge about gifted education. Reflections from the observations of classes of gifted students, work with gifted students, and the strategies used to facilitate student interaction and learning, were useful in reflecting new understandings, as well as changes in beliefs and knowledge about gifted education. Independent practicum projects were essential for understanding how practicum experiences resulted in participants' development of practical knowledge. Personal interviews and e-mail were used to answer additional questions.

Through analysis of data, we inferred four themes:

The themes were developed based on the teachers' responses in reading reflections, observations, and development of project.

1. Teachers' beliefs about gifted education including, for example, justifications about the need for gifted education, beliefs about appropriate teaching strategies, and perspectives about gifted programs within their districts;
2. Issues in the field that interested or concerned them (including perceived needs for improving their own pedagogical practice, concerns about their roles within their schools, and their passion for supporting gifted students);
3. Perceptions about their own learning through the practicum experience (for example, greater understanding about gifted students' learning styles, insights into effective gifted education curriculum and programs, and awareness of the development of practices in their classrooms); and
4. Barriers in working in the most effective ways with gifted students (often centered around frustrations with their roles and the pervasive lack of time, lack of support from parents and school personnel, and concerns about their own content knowledge and teaching strategies).

This study investigated the ways in which these four themes evolved during the practicum experience by focusing on two practicum participants. Both of the educators are new to the field of gifted education, and both expressed great enthusiasm about their new roles in education. As well, both were dedicated to their professional development through practicum, but they illustrated very different paths in the development of practical knowledge. Their responses to practicum components have permitted an exploration of the relationships among their unique interests or concerns in gifted education, their unfolding

practicum experience itself, their perceptions about their learning, and importantly, how they developed practical knowledge in distinct ways

Results

Nicole is a full-time teacher of the gifted in an “Extended Learning Program” (ELP) in two elementary buildings.

She describes her role as:

1. Teaching fourth- and fifth-grade cluster groups for reading/math extensions once per week;
2. Initiating first-through-third-grade whole-class activities to begin to identify high-ability students with advanced academic needs;
3. Providing curriculum resources and ideas to classroom teachers; and
4. Serving as a mentor to address the individual social/emotional needs of students identified for ELP.

Nicole’s characteristics of development of practical knowledge

Nicole illustrated the “survival stage” in terms of practical knowledge, and she demonstrated the prototype of beginning teachers. She expressed sincere concern about her teaching practice, especially differentiation strategies. She had to spend a great deal of time planning lessons. Nicole commented that her “biggest difficulties involve time and planning. In order to know what effective lessons involve you also need previous knowledge and understanding/application of differentiation strategies... Trying to plan with several [essential] criteria [in mind] becomes very difficult.” Nicole continued: “For the most part, it was sink or swim in this job. There can only be so much guidance provided and then you need to jump in and start learning on your own... it was tough for me.”

Nicole needed to articulate new an appropriate lesson plans in order to meet the needs of her gifted students. She believed it was essential for her to understand the scope and sequence of the general education curriculum for first through fifth grades in order to prepare relevant enrichment and extensions. In addition, she tried to incorporate into her lessons the criteria for differentiation strategies described in the professional literature. All of this was challenging for Nicole. With no prior experience in the general education classroom, she felt a lack of confidence both in knowledge and practice.

Nicole wanted to apply differentiation strategies to her class, but her understanding about differentiation was at the theoretical level; she had not internalized practical knowledge about differentiation. She implicitly understood the difference, reflecting, “I went to work with third-grade whole class; we were working on logic puzzles/deductive thinking... I felt more confident with this particular lesson, because I had some background experiences with logic and resources to pull from. I think this helps when planning and developing lessons.” (Nicole had no opportunities to observe classroom differentiation, and she had to develop and implement differentiation strategies in her class by herself. Her concerns about her teaching practice did

not diminish completely during the practicum experience, and her interests or concerns in gifted education emphasized her specific role. An insightful educator, Nicole understood that “As I continue to reflect, I realize this job is challenging for me because there is no set structure. I thrive off clear set goals and structure. It’s not gifted education. It’s not about the right answer— it’s about pushing through the frustration and doing your best.” In essence, Nicole was slowly but successfully developing practical knowledge through trial and error and reflection. Her greatest difficulty with differentiation strategies was determining how to adjust lessons to meet everyone’s needs. Noting, “I am still very uneasy about identifying/integrating the strategies... I feel like it’s all product differentiation, no content or process.” At times, she felt that her lessons were too fragmented, and she recognized the difficulty she had in incorporating differentiation strategies into content. Enacting differentiation was at a level of superficial rather than practical knowledge to her. Nicole expressed satisfaction, though, with an experience that exemplified her evolving understanding. She recognized that her practice was no longer superficial, but knowledge successfully utilized in the classroom.

In a small cluster group, I presented a challenge math problem. Each of the children started solving it in their own way—one child used a table, another used a diagram, and another used basic equation/computation. After reflecting on this lesson, I realized this was a way of differentiating based on process.... Part of my job is to realize how they were approaching [the problem] and guide them using their strategy. It was amazing to see how these students were putting the pieces together. I was pretty excited. Maybe I am offering more differentiation than I originally thought.

As Nicole reflected on her efforts to meet the needs of her gifted learners, she became increasingly able to recognize what differentiation looks like in the classroom, and she was able to articulate what had been only conceptual understanding about differentiation, making it practical. She internalized differentiation as a component of her repertoire of practical knowledge. Through trial-and-error and reflection, she was gaining confidence in her knowledge and in her practice. The increasing confidence served as a catalyst to develop new practical knowledge: “My depth of thinking about delivery has increased. Throughout the past two years, I have picked up on different pieces, so I feel confident in my overall knowledge of talented and gifted—but now I am ready to take it to the next level-to keep questioning/modifying ideas to fit the needs of my students.”

Because Nicole was certified as an elementary school teacher, she was required to complete at least one credit hour of practicum at the secondary level. Although the requirement is a logical one, since the Talented and Gifted Endorsement permits the recipient to work with children from kindergarten through the senior year, in this case, Nicole was required to focus much of her time and attention on issues at the secondary level, even while she was preoccupied with classroom differentiation for her elementary students. Reading recommended articles about differentiation allowed Andrea to reflect

on her personal practice, as well as better understand strategies about higher-level questioning, problem solving, and problem-based learning. The learning was theoretical, however, and noting “I would like to learn more about effective units/samples being used at the elementary level... I would like to see differentiation strategies being applied in the classroom along with those mentioned in the required readings”. Nicole perceived that reading alone limited her development of practical knowledge.

Through her experiences at the secondary level, Nicole learned a great deal about programming provided for gifted students in her district’s high school, as well as the characteristics of secondary gifted students. She participated in high school counsellors’ meetings, and she learned about the high school online Advanced Placement (AP) and honours classes available in her district; she checked the progress of AP students as they independently worked online, providing support for their efforts. She served as a mentor for AP students, counselling them about time management issues, and she commented that “it’s amazing how different kids can be one-on-one as opposed to with their peers. Some students discussed concerns or problems they would like to work on”. Finally, Nicole supervised a secondary class dedicated to inviting guest speakers to make presentations to the students. Her secondary practicum experience did not directly address her most pressing concerns and interests in gifted education, nor did it develop her teaching practice. Her experience, however, did make it possible for her to work directly with the high school gifted coordinator and assist with secondary gifted programming.

Nicole’s practicum goal focused on looking for ways to create mentorships between gifted high school students and gifted elementary students, allowing the secondary students to share their areas of academic passion with the younger students. Nicole encouraged shared learning opportunities across the grades for high-ability learners with similar interests. In other words, although Nicole emphasized her need to enhance her own practice in terms of successfully implementing differentiation with elementary learners, in this case, her practicum experiences and goals had limited impact on her most pressing concerns/ interests in gifted education. The professional practical knowledge she internalized had more to do with understanding and coordinating administrative program components than with academic process.

Factors affecting the development of practical knowledge:

Nicole keenly perceived that she had too many roles to play in gifted education and limited time to plan lessons and work directly with gifted students; both problems were barriers to the development of practical knowledge. Her assigned responsibilities included providing resource ideas to classroom teachers; modelling differentiation strategies in general education classrooms for grades one through three; creating small cluster groups of fourth- and fifth-grade gifted students; and working with the cluster groups in two different buildings in order to extend their curriculum. For her practicum experience, she endeavoured to help a secondary mentor meet the social/emotional needs of high school students identified as gifted and to assist in acceleration requests. As

a result, she had limited time to prepare for her instructional role with gifted students, especially since she was still mastering content knowledge as well as differentiated teaching strategies.

Nicole was assigned to work with her gifted students for only one hour each week. She knew that understanding academic and social-emotional needs were critical in terms of providing the best opportunities for gifted students; understanding individual needs as well as evaluating students' learning, however, requires time. Nicole questioned, "Is meeting with these students for about one hour per week truly affecting them and enhancing their education? Where and when does the true learning occur? What is a realistic expectation for this job?"

Through her practicum experience, Nicole assisted with high school programming and worked with a secondary gifted coordinator. She participated in a counsellors' meeting and developed greater understanding about her districts' AP/honours classes, serving as a mentor for students enrolled in online AP classes. She met with secondary students and interviewed them, substantially augmenting her understanding of what gifted education encompassed at the secondary level. As well, she learned that harnessing the academic passions of students was a powerful educational tool, regardless of the age of the student. Nicole's practicum goal to facilitate a high school mentoring program, encouraging secondary students to volunteer to share their academic passions/interests with elementary students, was successful. With the help of the secondary gifted-program coordinator, she discovered a high school student who was interested in teaching an after school Web-design class for her elementary students. That success confirmed her belief that making connections between older and younger students, enabling them to share their love of learning, would be a positive and productive experience for all of the students.

Her practicum experiences, however, also limited her development of practical knowledge at the elementary level in important ways. Her first practicum experience was a passive one, as an observer at the secondary counsellors' meeting, taking notes on high school gifted programming. Although she broadened her understanding about the characteristics and needs of gifted high school students, and she had opportunities to learn more about beginning to meet those needs through several counselling sessions with individual students, her primary concerns about her teaching practice at the elementary level were not diminished. She had no opportunity to observe gifted classes at the high school level, since students were working independently, online, or at the elementary level because she provided all programming in her small district. Her development of professional practical knowledge, traditionally understood to emphasize classroom practice, was limited, with few opportunities to strengthen the practices in which she was most interested.

Nicole felt isolated in her role and in her school. It had taken two years for her to feel comfortable with the general education teachers in her district. When she visited colleagues' classrooms to demonstrate whole-group differentiation, she

believed that the general education teachers would be enthusiastic to learn about ideas or resources available to meet the needs of students requiring more challenge. For the most part, however, the classroom teachers remained aloof from Nicole's lessons, using the time to complete their own work. Actually she wanted more team approach and to talk about strategies with regular teachers. While Nicole hoped to plan lessons with the teachers' whose classrooms she would be visiting, it was difficult to find either the time or colleagues invested in the process. Nicole planned the lessons, alone, especially after her mentor in the field of gifted education moved away after Nicole's first year in the district. Even her mentor had not been able to bring the concept of differentiation to life for her; Nicole wanted to go beyond theory to observe what differentiation looked like in the elementary classroom. She believed that observations of best practices would appreciably enhance her practical knowledge of differentiation. Without these options, though, and with an expectation that she would provide general education teachers with ideas for classroom differentiation, Nicole had to rely on trial and error, as well as reflection on her own practice, to develop her understanding.

During practicum, Nicole did find that "talking to others about my learning and experience is the best strategy for me". In summary, Nicole was developing her practical knowledge about differentiation largely by herself, without guidance or support from other general education teachers or a mentor in the field of gifted education. The sense of isolation made her feel that authentic professional development was difficult.

d) Making efforts and passion to development of her own practical knowledge: Continue new trial and reflection

In spite of the barriers to the development of practical knowledge, Nicole was dedicated to improving her professional practice, and she made conscious efforts to implement innovative strategies with new content that her students needed. Nicole wrote "As far as my teaching practice, I have been really evaluating my materials. Are they beneficial? Is the level of thinking appropriate? Am I doing right? Is this the most effective way? Am I accomplishing what I should be"? Every time she prepared new lesson plans, she considered ways to facilitate student choice to enrich the general education content, encouraging learners to expand both in depth and breadth. She reflected that:

I believe one of the most powerful practices in gifted is student choice. This semester I have found myself reflecting on the following questions - Does this connect to their personal experiences and interests? Are they excited about the topic? How can I make connections?...I am re-evaluating how to make the groups more flexible and directed toward different needs that arise-not just academically but affectively as well.

She recognized that reflection was critical, noting "Part of my job is continually reflecting on my teaching and trying to find ways of improving. I think I've

learned the important lesson of reflecting constantly on my work/efforts/ideas. This is one way of ensuring that I am growing as a learner". Clearly, this demonstrated that Nicole was growing as a professional.

Camie

She had the opportunity to teach the Talented and Gifted (TAG) 10th-grade English class, serve as the TAG sponsor for various activities, and coordinate two classes allowing TAG students to complete independent projects. Through that experience, she became interested in earning her endorsement in gifted education. She had an opportunity to teach 'Letters about Literature' TAG elementary students in two different elementary schools as a practicum experience.

Camie's characteristics of development of practical knowledge

a) Earlier career in gifted education, but enthusiasm and growth stage over survival

She was a beginning teacher in gifted education, but she was in a growth stage over survival. According to Lynn' opinion about career cycle of teachers (2002), Teachers who are in growth stage have reached a high level of competence in their jobs but continue to progress as professionals. They love their jobs, look forward to going to school and to interacting with their students, and are constantly seeking new ways to enrich their teaching. July became teaching Letters about Literature for the first time, but she did not feel much difficulty in lesson plan and teaching TAG elementary students. And she enjoyed this challenge.

"I loved this lesson plan [corresponding comment or a compliment]. It went so well. I used examples from the website and also I created some examples. Students had to decide if each example was either a corresponding comment or a compliment. It became a debate at first then it finally starting to sink in. The students are catching on to the purpose of this program..."

She believed she was doing differentiation in her high school class and her confidence in teaching strategies can be showed from following comment.

"I noticed that in my high school courses - I was using differentiation more. Students all read the same book, but were given different opportunities to present literary devices from it. I had re-enactments, oral presentations, visual art, original video productions, acting, and movie posters, it just allowed the kids to shine in their talented area. Plus - it reinforced the concepts much more to each student. It makes the learning for the students better."

In summary, she was teaching new subject (Letters about Literature) different students (elementary students). But she could find resource and modify them for her lesson and apply her differentiation strategy to new subject easily.

b) View of gifted education was widening over her own teaching practice. Deepen and widen understanding gifted education in reality.

Even if she has confidence in her teaching practices, she had some difficulties in understanding TAG students' learning style in elementary school. Through teaching elementary students, she realized that learning style and knowledge background between elementary students and high school students were different and she needed to organize her lesson more and pre-assessment.

"The kids at the elementary school want to learn. They want to be heard. They want to try new things. ... I've learned that elementary students need more time to have experiences. I need to remind myself that the prior knowledge may not be there."

Another problem to her was the relationship among parents. She realized some elementary students' parents intervened in their children's work and gave TAG teachers pressure to working with students. Before then she just teaching and coaching high school students. This opportunity gave her a chance to consider about the identity and role of teacher of the gifted. She started to think about many issues in gifted education, the relationship of Teacher and TAG parent, the problem of Underachiever and unmotivated TAG students in high school students. System problem, for example, supporting TAG teacher, Justification of gifted education, and time allowed for TAG teacher to teach gifted students.

"I think some parents have the wrong impression about TAG teachers. I think some think we sit around all day and just wait for work to come our way. Parents seem to be more involved.... Shortage of money, ELP teachers are always asking for donations such as pencils, books, etc. ELP teacher seem to spend quite a bit of money out of their won packets at conferences to use things in their classroom... It amazes me how some have a pull-out program where they only meet with the child once a week... Justification of their job"

As a result, this experience gave her an opportunity to reflect on her practice and students in high school, to broaden understanding about gifted education and catalyst to develop her practice.

'I am more aware of learning style in my classroom. I am more aware of articles in educational journals on the topic. It has made me want to be a better teacher. I don't want any student to not be challenged on a daily basis in my classroom.'

c) Practicum experiences resulted in extending to leading TAG teacher and providing resources in elementary school.

July's practicum experience teaching elementary TAG students did not resulted in just broadening understanding gifted education and developing her practical knowledge of new subject. It was a catalyst to reframe her practice in high school and a motive to develop practical knowledge from different views.

"I really had fun with letters of literature. It was new to me and I just wanted to find out everything associated with it. I think, as teachers, sometimes we can get

stale in teaching the same course after a while. This made me spice up some of my other classes”

Her practicum independent project was to complete a ‘Letters about Literature Handbook’. She made that goal for two reasons. One is for the ELP teachers, who wanted copies of her lesson plan format that she used that semester so that they could emulate them next year. Second is for herself. She wanted to incorporate that program in her own English classes. That means that her role in practicum experience resulted in not limiting to her development but extending to support other teachers of the gifted.

Factors affecting the development of practical knowledge

a) Passion in professional development and beliefs about education

She had passion in her professional development. She graduated with language arts/English, theatre, psychology, speech, and sociology. She had masters in secondary education and another in mass media communications. And she became interested in getting certificated in the gifted during teaching TAG independent projects. She believed that the more she knew about teaching, the more effective she could be in the classroom.

She also believed that all teachers should take classes in differentiation and/or collaboration. She thought differentiation would work for many learners and collaboration within the departments would help the student progress from one class to another. In addition, she believed that teachers would benefit by having professional growth in their subject areas. That means she did not think about just teaching gifted students but also considered diverse learners including gifted and talented students.

She used differentiation strategies during her regular high school classroom for making students learn better, understanding students’ learning style and awakening students’ desire to learn in her classes and commented the following in the journal:

“I try to use many strategies. They [students] present final projects on an independent reading. The projects are open- ended to fit each student’s interest and abilities. One is going to recreate a scene on video, another is going to dress up as Ray Bradbarry and impersonate him telling a childhood story, another is completing a powerpoint. etc.”

“It just allowed the kids to shine in their talented area... It is harder to grade, harder to plan, but it makes the learning for the students better. It also reinforced in me the idea of the under-achiever. To not rule him or her out, but to awaken their desire to learn in my class.’

These strong beliefs about education and passion made her pursue developing her practical knowledge and make efforts to develop it and enjoy challenge.

b) Abundant Teaching experience and knowledge background

As mentioned above, she was an experienced regular teacher in high school. And she majored in many areas. She believed differentiation was a best practice and she had been doing differentiation in her high school class. Even if letters about literature was a new subject to her, she had experience teaching English honor class and literature in high school. So, she had sufficient knowledge background and how to teach it. She did not have to make transformational change for this new subject. Transformational change means one way teachers adapted for individual differences. It needs numerous and significant alterations in their practice in the classroom for change of teaching strategies. Meanwhile, changes that require few alterations are described as conservational (Rubie-Davies, 2010). July found some resources from websites and modify them into her TAG students in elementary school. Therefore, unlike Nicole, she did not feel much difficulty in lesson plan. After all, conservative change seemed to be sufficient for her for this new subject.

c) Students' reaction and TAG teachers' support gave her confidence in her lesson and practice.

She had some difficulty in understanding learning style of TAG elementary students. But after a while, she was gaining confidence in teaching them. Especially, confidence in lesson plan and practice was strongly affected by TAG teachers' support and students' reaction. When she suggested 'Author Luncheon' to TAG teachers, all agreed with her plan. She was very impressed with students' reaction to that event.

"The Author talked about her love of books and what made her pursue writing. She gave a brief explanation of her current book and talked about how she brings characters to life with experiences that she hopes her readers can relate to. ... I have never witnessed such dramatics in such young students. Some students obviously are catered to at home."

Over all, she wanted that the time she and her students was productive. So, she worked hard to prepare for each lesson. And students' reaction was a big motive to gain her confidence in her practice and efforts. She was satisfied with her lesson and practice.

"When a lesson went well- the kids grasp the concept that I was trying to teach them- made me my heart sing. I worked with the kids mainly after school. We met 9 weeks and I had no absences. I think the commitment of the kids really affected me.'

d) Not an observer or an assistant but teacher who had authority during practicum experience.

Unlike Nicole, Camie had an opportunity to observe and co-teach gifted students in elementary school. When she discuss ELP elementary teachers in her community school district about her hope observation/co-teaching in gifted programs, they allowed her to observe 30 minutes in their classes and then to

teach a 30 minutes class to those students who wanted to participate in 'Letters about Literature' program at two schools.

At first time, she was allowed to observe and co-teach with ELP elementary teachers. But after a while, ELP teachers started to support her opinion and allow freedom to teach their students.

"I was supposed to observe the first 30 minutes,... I noticed this week that the ELP teacher at W school includes me in everything and co-teaches the first 30 minutes and then assists me the last 30 minutes, the TAG teacher and I played devil advocate with 13 students. We made them defend their answers'... I think the teacher is starting to rely on me for the entire hour...."

Therefore, her role in practicum experience was not a just an observer or an assistant, but a teacher who planed lesson independently and taught students as she planned. This means her lesson plan and teaching practice were admitted by ELP teachers and the authority of ELP teachers handed over to her and she was in charge of students' learning. Through teaching gifted elementary students directly, she learned different learning style from gifted high school and experienced some conflict between parents. This teaching experience gave a chance to learn by doing and reframe her practice and became a motive to develop her practical knowledge in high school as a professional growth. Moreover, she became in progress of making resources and supporting ELP teachers.

Discussion

A metasyntesis of the in-service professional development was conducted using Dunst, Bruder, & Hamby, (2015) research as applicable on Niocle and Camie's responses at various levels of the research study. Nicole and Camie were both in earlier career in gifted education and believed differentiation should be realized in classroom. But their development phases of teaching gifted students are different. Nicole's concern was mostly about expectation of her role and lesson plan and teaching strategies. Jung, McCormick, & Gross, (2012) indicates that novice teachers use specific lesson objectives to form structured lesson plans that they did not adapt to meet student needs during teaching. Her concerns focused on her lesson plan for differentiation and meeting some standard about it. On reflection on her practice, she always felt some frustration from gap between her lesson plan and her practice in class. Jung, McCormick, & Gross, (2012) research about novice and experienced teachers showed that novice, student teacher or beginning teachers enter classroom with images of themselves as teachers that have been derived in part from their own experiences as learners. And initial focus of novice teachers was inward. This means many novice teachers' teaching practices were affected by their learning experience in school. Nicole wanted to teach gifted students using differentiation, but the method she has experienced and learned about differentiation was only through books or materials. She did not have experienced even observing how differentiation is realized in a classroom. So, she had to learn to teach even without previous learning experience about

differentiation. The method she acquire the concept of differentiation in reality is only through trial and errors in her class and reflecting and accumulating her experiences by herself. She spent much time on lesson planning and did not have confidence in teaching gifted students using differentiation until then. Therefore, Nicole seemed to be still novice and at the survival stage.

Unlike Nicole, Camie was in another phase. She began to teach a new subject at a different level to students for the first time. But, she did not feel difficulties in lesson planning for this new subject. This new subject was not totally different from her English class. She thought differentiation was very important and taught using differentiation in her high school. Even if she had difficulties in teaching gifted students for lack of knowledge of the learning style of gifted elementary students at first, she became gaining confidence in teaching them. Her concerns are not inward but outward. Lisa's most concern was encouraging all teachers take classes in differentiation and collaboration. Her most struggles through her practicum experience are about parent or regular teachers' perception about gifted education, or justification of gifted education. She realized the status of gifted education in reality. We can say that Nicole was in a new turning phase which was beyond her practice to start to think about gifted education from systematically view and support gifted students' everyday lives.

One of important factor affecting their development of professional knowledge was practicum experience. In case of Nicole, practicum experience assisting coordinator in high school could not give her a chance even to develop her practice about differentiation. Although she developed understanding about gifted education system in high school, her practicum experience could not reduce her concern about her teaching practice. Meanwhile, Camie seemed to feel more comfortable rather than Nicole about lesson planning, and teaching gifted students in elementary school. She had experience teaching Literature and English. So she might have sufficient knowledge background about her new subject 'letters about literature'. Her practicum experience teaching gifted students in elementary school not only broaden her understanding about gifted education but also gave her a motive for her development as a teacher in high school. And practicum experience confirmed her previous beliefs about differentiation and needs of regular teacher's professional development in gifted education. Therefore, even if teachers are beginning teachers of the gifted, their phase of development of practical knowledge might be totally different from previous experience and practicum experience.

Another important factor affecting their development is passion as a learner about teaching gifted students and reflection on their practice continuously. Every time after her practice, Nicole evaluated her practice and considered organizing lesson and connection between content and student experience or interest. As she reflected on herself, she realized her teaching style liking structure and organization and she tried to be more flexible during lesson plan and teaching practice. She also felt that reflecting on her work made her growing as a learner and she had learned that good teaching requires reflection and flexibility. In case of Camie, She believed that the more she know about teaching

she could do effectively in the classroom. This was a motive for learning something new and she enjoyed new challenges. During practicum experience, she made new trials. Through reflection on her practice, she became aware of students' learning styles in her classroom. Especially, reflection on students' reactions on her teaching practice became a strong motive to pursue her development.

Steffie and Wolfe, (2001) suggested a life-cycle model for career teachers. They assumed that teachers will continue to grow and develop throughout their professional life time and they can engage in transformational processes including critical reflection on practice, redefinition of assumptions and beliefs, and enhanced self-worth. Jones et al, insisted that the critical factor that enables teachers to propel themselves through the career life is the reflection-renewal-growth cycle. Andrea and Lisa both reflected their practice and themselves continuously. They evaluated their beliefs and themselves as a gifted educator and found their weakness and new learning from them. Those were stimulus for them to make efforts to improve their practical knowledge and resulted in their development as a teacher.

Meanwhile, isolation was a barrier to development of these teachers' practical knowledge. As to Castro (2010), one of the most important contextual factors may be the personal relationship that develops between a novice and his or her cooperating teacher. Baudson & Preckel (2013) elicited four ways of professional learning, reading in order to collect new knowledge and information or data, doing as well as experimenting, reflection, collaboration. Baudson and Preckel insisted that collaboration is the most important to professional development as it not only provides necessary support for learning but also provides teachers with feedback and brings about new ideas and challenges.

In the case of Nicole, she wanted to develop her practice continuously and wanted to share her experience with other teachers. She felt talking to others about her learning and experiences were the best strategy for her development through practicum course. She wanted evaluation tools for teachers themselves. But in her school, she did not have a collaborator who helped her development of teaching practice or develop lesson plans cooperatively. Meanwhile, she was in a situation which provides regular teacher resources ideas for differentiation. This means although she wanted better practice, no one could support and give her feedback for her development.

Many beginning teachers feel isolation, too. But their role or job is not threatened by other colleagues and parents in their school. Meanwhile, teachers of gifted students have to justify their job to regular teachers or parents or even administrators who do not understand the needs of gifted education even in their school. It took some years for Nicole to feel comfortable with other regular teachers at her school and earn admission of ideas/resources for gifted students' needs from them. She had a mentor for the first two years. But her mentor might not support her much about what she wanted to learn to teach, because she still wanted to observe the class using differentiation in elementary level even after mentoring leaving. Only the way she developed her practical knowledge about

differentiation was doing by herself in her class. So, contrary to her hope of collaborating, this situation prohibited her professional development.

Isolation feeling was the same to Camie. Even if she was most supported about lesson plan and her practice by gifted teachers in elementary school, she sometimes felt some difficulties in collaborating with them in class, especially, about understanding students and sharing task.

Conclusion

Practical knowledge is challenge for beginning teachers. Berman, Schultz, & Weber, (2012) argue that 'new teachers have two jobs- they have to teach and they have to learn to teach. No matter how good a pre-service program maybe, there are some things that can only be learned on the job'. As Nicole said 'There can only be so much guidance provided and then you need to jump in and start learning on your own...', it is very hard for teachers to obtain practical knowledge through only direction and materials without their practices and reflection on them. But teachers need guide for effective practitioner. We could not expect only teachers' passion about their job for their development. As mentioned above, previous experience, practicum experience, and reflection play an important role in these two teachers' development. So we need to organize teachers' of gifted learner's practicum experience to reflect on their practice and establish collaboration among beginning and experienced teachers of the gifted to support their development.

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