GIFTED EDUCATION PROFESSIONAL DEVELOPMENT

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ABSTRACT

This paper reviews the current research regarding professional development in general education and gifted education. It provides various models of professional development for general education that can easily be transferred to gifted education and the gifted education professional.

Keywords: *Gifted Education, Professional Development*

Professional development is the foundational framework of best teaching practices. Highly able learners must be recognized through a systematic programming process that ensures a high level of importance. General education and gifted education teachers must be able to recognize a high-ability student, who may require complexity and even more depth of instruction or possibly a referral for further assessment and services. Teachers of gifted learners or general education teachers should be familiar with the research, theory, curriculum strategies, and educational practices necessary to sustain a high-quality, classroom-based opportunities for advanced gifted student learning.

This paper will synthesize the current research regarding various professional development models in general education and gifted education. The key component of collaboration is noted in all models presented. General education models and strategies are easily transferable to gifted education. This paper begins with an overview of professional development standards in gifted education, parent advocacy group's role, online learning opportunities, professional learning experiences, professional learning community, a team model, rural PD, gifted PD, TED talks, self-directed PD, meaningful PD, instructional coaching, a higher education model, and pre-service teachers.

The various Gifted Education standards provide a starting place for the development of professional learning activities in gifted education.

In the **Gifted Education Programming Standards,** Johnsen (2012), standard 6: Professional Development is addressed:

This standard examines the preparation of educators and the knowledge and skills needed to develop their students' talent and socioemotional development. It also emphasizes high-quality educator development that creates lifelong learners who are ethical in their practices. Student outcomes include the development of their talents and focus on the social and emotional areas. To achieve these outcomes, educators (a) participate in ongoing, research supported, and multiple forms of professional development that model how to develop environments and instructional activities for students with gifts and talents (b) provide sufficient

human and material resources for professional development (c) become involved in professional organizations (d) assess their practices and identify areas for personal growth (e) respond to cultural and personal frames of reference (f) comply with rules, policies, and standards of ethical practice. (Johnsen, 2012, p. 16).

Additionally, Johnsen (2013) addresses the need for professional development stating that evaluations for special education teachers should support continuous and ongoing professional development opportunities.

Johnsen (2012) mentions the importance of the standards. "Standards can offer guidance to teacher preparation institutions in developing programs at the both the initial and advanced levels and to Pre-K to Grade 12 leaders in planning and implementing professional development activities" (Johnsen, 2012, p. 55). Johnsen (2012) cautions, the standards could possibly be expanded to reflect the actual needs in the classroom to become highly relevant. If the standards were expanded teachers could more easily develop "professional development plans and identify needed human and material resources for successful implementation within their classrooms" (Johnsen, 2012, p. 55). "Classroom observations and on-site technical assistance to ensure fidelity of implementation" is needed for professional development. (Johnsen, 2012, p. 55).

Overall, practitioners who have attained the relevant theory and research, an understanding of the developmental levels of gifted and talented students, a foundation in content and pedagogical knowledge, and classroom instructional management techniques ultimately strengthen the quality of services for gifted and talented students (Johnsen, 2012, p. 56).

According to the New Mexico Gifted Technical Assistance manual, professional development is defined as:

Continuous professional development is vital for all educators and related service staff. Regular education teachers, special education teachers, gifted education teachers, school psychologists, SAT members, and educational diagnosticians are key players in the referral, identification, and educational process. In-service opportunities for all teachers, as well as under-graduate and graduate-level coursework for gifted education teachers, can provide the skills necessary to identify students who are gifted. Diagnosticians and school psychologists need to enhance their skills in the testing and evaluation of students who are gifted. In particular, much work needs to be done regarding the assessment of ethnically and culturally-different students, as well as students from low socio-economic situations. Alternative protocols are available to districts for students with factors. New Mexico Public Education Department. (2011).

The United States main education law known as ESSA/ESEA, formerly known as No Child Left Behind Act, now has provisions that support gifted and talented students. "The Title II portion of ESSA focuses on professional development for teachers and school leaders" (Welch, 2016, p. 3). For a state to qualify for receipt of Federal funds, submission of professional development plans describing how teachers and administrators are not only helping all students but now including gifted and talented students, to achieve and learn more. As Welch (2016), states: "this provision should inspire states to consider whether they are properly training teachers in how to develop the skills of their high ability learners" (Welch,

2016, p. 3). The next provision applies to school districts receiving Title II funds; again districts must address the needs of all students, now including the gifted and talented students in professional development programs. School districts will need to define how this particular provision is implemented. The allowable use of Title II funds states: "schools may use their federal professional development funds to train teachers and other school leaders on how to serve gifted and talented students and those high ability learners who have not yet been identified as gifted" (Welch, 2016, p. 3-4). Welch (2016), further states: "this Talent Act derived provision states that teachers and school leaders should receive training in strategies for supporting gifted and talented students, such as acceleration, enrichment, curriculum compacting, dual enrollment, and early entrance to kindergarten, among others" (Welch, 2016, p. 4).

Willis (2012) discusses the important role of parent advocacy groups in meeting the needs of gifted students. Professional development and improved training is needed in gifted education.

Sixteen states require district administrators for gifted education; however, administrators are only required to have training in gifted education in six of these states. Only 21 states require teachers in specialized gifted education programs to have a certificate or endorsement and only five states require teachers in specialized gifted programs to receive annual professional development. Most concerning, the front line for identification and services to gifted and talented students are regular classroom teachers, and 36 states do not require regular classroom teachers to have any training in gifted and talented education at any point in their career. (Willis, 2012, p. 14).

At the state level, many times professional development offerings create a large disparity of services between states. Parent advocacy groups can make a difference in gifted education by supporting and ensuring increased accountability, centralized decision making, and professional development for teachers. (Willis, 2012).

One way for teachers of gifted and general education teachers to engage in professional development is via online learning opportunities. Due to funding, resource issues, and limited teacher available time, online professional development could provide "increased professional learning opportunities across a range of topics and initiatives as well as for promoting professional collaboration and teacher facility with technology resources" (Little and Housand 2011, p.19) Little and Housand (2011) state:

Online professional development offers a promising direction for providing increased learning opportunities, promoting professional collaboration, and supporting teacher facility with technology resources. In gifted education, online activities may present effective ways of connecting gifted education professionals across multiple schools and districts and providing professional learning experiences in gifted education for colleagues in general education. (Little and Housand, 2011, p. 19).

Professional development is limited in the gifted education area. Many other district and school initiatives take time and precedence over gifted education needs. Online professional learning may be an effective consideration in an effort

to connect gifted education professionals and general education professionals across many schools and districts. (Little and Housand, 2011).

Online professional development options might include: podcasts, webinars, tutorials, video conferencing, and websites. Longer term professional development could include collaborative online professional learning communities. A group of teachers could meet together in person as well as participate in online discussions or other activities. Online learning is highly flexible for all who collaborate. "Depending on the format of the professional development offering, teachers may be able to access it from work or from home, at scheduled times or at their leisure" (Little and Housand, 2011, p. 20).

Research efforts have been somewhat limited in determining a correlation between professional online learning and outcomes for students. There seems to be a plethora of literature promoting key features for teacher online learning and updates to classroom practices, which in turn has a major impact on student learning. The key features are: coherence, acknowledgment of teachers' existing beliefs, active engagement, sustained attention, and support from school administration. (Little and Housand, 2011).

First, key feature of effective professional development for online learning is coherence. "An emphasis on coherence in professional development supports the relevance of professional learning activities to the needs and goals of teachers and the schools in which they work" (Little and Housand, 2011, p. 20). Teachers and administrators can ensure there are meaningful goals for professional development. Also, there needs to be vertical alignment between teacher learning needs and student learning needs. A final way to ensure coherence is through gathering data on goals and needs by examining teacher and or student evaluation data; teachers could also be asked for their input regarding professional development planning.

Second, key feature of effective professional development for online learning is acknowledgment of teachers' beliefs and practices. Reflection, engagement, and questions/concerns are necessary components for teachers to discuss connections to their own environments. (Little and Housand, 2011). Teacher attitudes and beliefs can be changed if teachers try something learned through professional development and then see the effects on their own students. Online professional development allows for flexible pacing and differentiation to allow more tech savvy teachers the opportunity to move more quickly or even explore more thoroughly. (Little and Housand, 2011). Gifted teachers who participate in online learning may feel a connection of collaboration and communication within an online community.

Third, key feature of effective professional development for online learning is active engagement and collaboration. Active engagement by teachers promotes teacher learning and changes in practice.

In addition, some research suggests that teachers show greater participation in those professional learning activities that result in a product that will be useful for their teaching; online environments may provide teachers with the context in which to work collaboratively on specific products useful for classroom implementation. (Little and Housand, 2011, p. 22).

Fourth, key feature of effective professional development for online learning is sustained attention. Sustained attention helps teachers maintain the focus on the stated goals of the professional learning initiative. Additionally, sustained attention allows for discussion or questions to be addressed as teachers' make changes to their practice. Little and Housand (2011), state several advantages to online professional development: "economic advantages, convenience, and immediacy of online professional learning activities as key benefits of this type of approach" (Little and Housand, 2011, p. 23).

The final key features of effective professional development for online learning are support from school administration and ensuring quality. Support from school administrators for professional development may be abstract and concrete. In the abstract sense, administrators demonstrate the value placed on professional development through their direct involvement and encouragement. Administrators must ensure time and resources are allotted to the particular initiative. At this time, there are few studies regarding online professional learning experiences. "These studies do provide indications that quality online experiences for professional learning have the potential to support teachers in their work, promote collegiality, and provide a positive influence on teacher attitudes about technology integration" (Little and Housand, 2011, p. 23).

Plunkett and Kronborg's (2011) research addresses gifted professional development. "Professional learning experiences have been found to improve teachers' attitudes toward the gifted and their ability to meet these students' needs" (Plunkett and Kronborg, 2011, p. 32). Improvements in teacher practices and attitudes can only occur when professional development has taken place. Additionally," professional development has a positive impact on a teacher's ability to provide effective education for gifted students" (Plunkett and Kronborg, 2011, p. 32). In summation, professional learning such as special training or in-service training provides exposure to many evidence based findings on the affective and cognitive characteristics of gifted students. (Plunkett and Kronborg, 2011).

One way to address professional development for general education teachers and teachers of gifted is the professional learning community which is a highly collaborative model used in schools. As DuFour (2004) states: "to create a professional learning community, focus on learning rather than teaching, work collaboratively, and hold yourself accountable for results" (DuFour, 2004, p. 6). By ensuring that students learn, is one of the premises behind a professional learning community. A professional learning community addresses not only what we want students to learn, but determining how each student has learned something. The overarching question a professional learning community needs to ponder is, "how will we respond when a student experiences difficulty in learning?" (DuFour, 2004, p. 7). When the professional learning community determines that students are struggling, the students receive additional time and intervention support. The plan requires that students receive extra time and assistance until they have accomplished the necessary concepts. Professional learning communities could also address the needs of gifted students such as accelerating, compacting, and enriching. Another premise behind the professional learning community is a culture of collaboration. The collaborative process is explained by:

Collaboration that characterizes professional learning communities is a systematic process in which teachers work together to analyze and improve their classroom practice. Teachers work in teams, engaging in an ongoing cycle of questions that promote deep team learning. This process, in turn, leads to higher levels of student achievement (DuFour, 2004, p. 9).

Professional learning communities are charged with questions related to learning and the generation of products that reflect focus, such as lists of outcomes, different types of assessments, analyses of student achievement, and strategies for improving results. (DuFour, 2004). DuFour (2004) firmly states: "faculties must stop making excuses for failing to collaborate" (DuFour, 2004, p. 9). The final premise guiding professional learning communities is the focus on results. All professional learning community teams at a school focus on identifying the current level of student achievement, establishing a goal to improve the current level, and working together as a team to achieve the goal by providing data evidence of progress. DuFour (2004) states: "data turns into useful and relevant information for staff" (DuFour, 2004, p. 10). As a professional learning community team member, strategies, ideas, and materials are accessible to each person.

Stewart (2014) continues the conversation about professional learning communities in her research article. Stewart (2014) highlights a collaborative, cyclical plan for continuous improvement. First, she suggests to identify the student's learning needs by using applicable student data. Next, there must be an identification of related teacher learning needs. Third, the teacher must learn or review concepts. "Content can include teaching theory, teaching strategies and other activities, such as aligning a curriculum to content standards" (Stewart, 2014, p. 29). Then, teachers apply the concepts to the lessons. The professional learning community is continually analyzing, developing, and improving the needed instructional materials. Further, "lessons and assessment are created or adapted to then be observed, critiqued, reflected upon and improved" (Stewart, 2014, p. 29). Finally, the cycle ends at critiquing and reflecting upon the lesson. The continuous improvement plan begins again with reviewing student data from the previous cycle time period. Stewart (2014) identifies several key features of professional learning activities: content focus, active learning, coherence, duration, and collective participation. Active learning will deepen understanding by bringing about changes in teaching practice; however, passive learning will not. (Stewart, 2014). In summation, Stewart (2014) states: "professional learning activities should be job-embedded, informed by data, centered on student work and how students learn, active, and occur over a length of time that will allow for cycles of development, implementation, and evaluation" (Stewart, 2014, p. 31).

Conderman's (2016) research furthered the idea of collaboration through a team model which provides academic and behavioral support for students as well as professional development needs addressed for teachers. Conderman (2016) states: "teams are increasingly assuming more responsibility for designing and implementing school reform initiatives such as school-improvement planning, curriculum redesign, school-wide behavioral interventions, professional development, and resource management" (Conderman, 2016, p. 71). Conderman (2016) mentions several advantages offered by teams to teachers. Teaching and

leadership teams aid in the improvement of learning and teaching. "Collaborative teams provide teachers with a sense of professional well-being, encourage teachers to continue their commitment to student learning, help teachers design continuous learning and school improvement initiatives, and support teachers with new knowledge and skills" (Conderman, 2016, p. 72). Interestingly, decisions made by teams are more original, innovative, and creative with longer lasting solutions. Students also benefit from teacher teams. Teachers who share their perceptions about students, in addition to the approaches found to be successful with students, translates to teams who have the potential of improving student work and student attitudes. (Conderman 2016). Liu, Miller, and Jahng (2016) stated: "education develops through the cultivation and sharing of practical understandings, not through the accumulation of facts" (Liu et al., 2016, p. 18). Effective teams promote productivity and collaboration by purposeful planning and the active engagement of each team member. Effective teams are always working to make changes that reflect their unique needs. (Conderman, 2016). Conderman (2016) addresses the need for teams to assess their effectiveness by acknowledging each team member's communication style, collaborative needs, and conflict resolution style. Teams experience various stages of effectiveness such as: forming, storming, norming, and performing. (Conderman, 2016). Finally, Conderman concludes his research by stating the specific strategies for effective teams to implement: "1) establish and implement operating rules or norms, 2) prepare a meeting agenda and maintain a meeting summary, 3) use effective communication skills, 4) incorporate problem-solving strategies, 5) use written forms for documents to keep team members accountable and on track" (Conderman, 2016, p. 74).

Hendrix and Degner (2016) explored demographic characteristics, facilitation experiences, and professional development of rural on-site facilitators working with an online Advanced Placement (AP) program. In the rural school setting, on-site facilitators may serve in many different roles supporting students. Since on-site facilitators may serve numerous roles, formal training may be lacking. For example, a gifted teacher at a rural district may serve many roles in the school setting, but may not have formal training in a role supporting AP students online. Hendrix and Degner (2016) state: "teachers who chose to also serve as on-site facilitators in rural schools often called upon person content knowledge to offer additional instruction" (Hendrix and Degner, 2016, p. 135). Many times students in rural high school settings were most likely to ask peers or on-site facilitators questions instead of the online teachers. On-site facilitators require a formal preparation program that addresses the AP courses the students are taking. On-site facilitators could collaborate with other facilitators to offer informal training.

The author's mention a professional development plan for on-site facilitators, which would include a type of credentialing program as a form of professional development, for teachers serving as on-site facilitators. Ongoing professional development for facilitators is needed. Hendrix and Degner (2016) state: "in an evolving field studying the many components of online learning, work must

continue to be done to better support the on-site staff for the role they are assigned as well as the role they undertake" (Hendrix and Degner, 2016, p. 142).

Glover, Nugent, Chumney, Ihlo, Shapiro, Guard, Koziol, & Bovaird (2016), researched the significant challenges faced by rural schools in providing appropriate professional development opportunities for teachers which includes, limited PD resources, location, and the lack of substitute teachers to cover for teachers released time. Deepening teachers' content knowledge as well as active engagement are considered positive characteristics of PD. "PD is also more effective if it is sustained over time and involves a substantial number of contact hours" (Glover et al., 2016, p. 2). PD also supports and encourages professional communication among all teachers to effect change in teaching practice. Participants in this study included kindergarten through fifth grade teachers from non-rural schools and rural schools. This study compared and contrasted rural and non-rural teachers PD experiences. Also, this research study examined the potential influence of PD characteristics on practice, knowledge, and perceptions.

Even though rural teachers may experience limited resources they were not disadvantaged in their PD experiences. Both rural and non-rural teachers described their best PD experience as one where a workshop and follow-up coaching occurred. Professional development was provided by external consultants. Glover et al., (2016) found that emphasis on select instructional topics during PD was found to be related to (a) increased perceptions of the utility of those topics, (b) increased perceptions of knowledge gained pertaining to those topics, and (c) an increased focus on those topics during classroom instruction (Glover et al., 2016, p. 11).

The author's findings suggest by presenting very specific instructional topics during a PD session, educators can increase perceptions about their utility as well as practice in their classroom. (Glover et al., 2016). Interestingly, the study revealed that more time spent on PD the greater the pedagogical content knowledge; this could suggest, that more time in PD may translate to boosting knowledge of instructional practices. Rural and non-rural PD experiences, practices, and perceptions were more similar than dissimilar.

Ford, Grantham, and Whiting (2008) address professional development needs to prepare educators. There are very few teachers that have received formal preparation in gifted education. Without professional development, teachers are unfamiliar with the characteristics and needs of gifted students, understanding giftedness, identifying and referring students for screening and placement, and teaching and challenging gifted students once eligible. To further one's knowledge in gifted education, the teacher could attend PD workshops or conferences or enroll in relevant gifted coursework at a university. (Ford et al., 2008).

Professional development for teachers of gifted could be centered upon TED talks "ideas worth spreading," online media site. TED talks could provide another perspective from leaders of other disciplines to teachers of gifted. Rubenstein (2013) stated:

professional development in the gifted education field should focus on a shared purpose that highlights the importance of increasing the expectations and engagement of all, not just gifted, students. TED can offer inspiration on how

teachers can take an active role in this purpose and then how they can share the results of their efforts (Rubenstein, 2013, p. 125).

Rubenstein (2013) describes a fixed mindset versus a malleable mind set. Those with a fixed mindset believe their ability and intelligence is unchanging; on the other hand, individuals who believe in a malleable mindset view their ability and intelligence as changeable. Individuals who subscribe to the malleable mindset "deliberately study other effective leaders and leadership processes to enhance their own leadership" through a resource such as TED.com. (Rubenstein, 2013, p. 126). Rubenstein (2013) suggests that opportunities for failure present learning experiences from which to improve. She provides an example of implementing differentiation; the teacher could learn how to improve classroom management strategies to effectively direct students. Rubenstein (2013) gives an example of a TED talk about a prominent musical conductor. She then compares educational standards to written music. Rubenstein's example, suggests that a teacher should be given full creative implementation of the standards in their classroom. Rubenstein (2013) then discusses how leaders inspire action. "When leaders of teachers encourage a shared purpose, they may help everyone see the importance of gifted education as an important component of an educational program that attempts to meet the needs of all students" (Rubenstein, 2013, p. 127).

Next, Rubenstein (2013) discusses inspiration; teachers must be inspired to then inspire students or even their peer colleagues. Another TED talk, demonstrates that a discussion about authentic products could lead to more incorporation of authentic products into lesson plans. In conclusion, Rubenstein (2013) stated:

part of the beauty of TED talks is that they address real problems in an optimistic manner. By incorporating them into your professional development plan, you are laying the groundwork for optimism, and by encouraging your faculty to create their own, you are promoting a collective faculty efficacy without losing an academic emphasis. (Rubenstein, 2013, p. 131).

In a research study by (Fraser-Seeto, Howard, and Woodcock, 2015), an awareness and willingness to engage with a self-directed professional development package on gifted and talented education was studied with ninety-six primary school teachers participating. Educators are expected to identify gifted and talented students who are affectively and cognitively more advanced than their same aged peers. Gifted students may display advanced memory skills, superior information processing skills, and be more persistent in areas of interest. (Fraser-Seeto et al., 2015). Further, gifted students are not a homogenous group and their abilities and needs are individualistic. Teachers of gifted students must ensure gifted student's educational needs are met or the students may experience boredom, frustration, and underachievement. Fraser-Seeto et al., (2015) stated: "there is mounting evidence that this lack of preparation (whether genuine or perceived) is related to teachers' professional development at both preservice and in-service levels" (Fraser-Seeto et al., 2015, p. 2). The self-directed professional development consisted of six individual modules to provide teachers with specialized learning for identification of gifted students, differentiation of the curriculum, and responding to students' learning needs. (Fraser-Seeto et al., 2015).

Results of the study showed that educators were willing to improve their knowledge and practice via the self-directed program; however, the study revealed a disconnect between willingness and action of the teachers' stated willingness to undertake the PD and the actual completion of the self-directed program. (Fraser-Seeto et al., 2015).

Patton, Parker, and Tannehill (2015), presented research strategies for teachers, administrators, and schools in order to engage in meaningful professional development experiences. Sustained opportunities to develop teacher practice must go beyond one-time workshop approaches. The school environment and the administration impact teacher learning. The author's suggest a professional development plan that allows for teacher freedom and voice in setting a teacher's personal goals, how to reach those goals, and a space to work together is provided to achieve success; thereby, giving a framework for teacher development. (Patton et al., 2015). "Research suggests that achieving changes in instructional practice and student achievement requires professional development that is grounded in social learning, coherent, based on content matter, focused on instructional practice, and sustained over time" (Patton et al., 2015, p. 27-28).

Patton et al., (2015), discuss eight core features of professional development linked to teacher engagement:

1. Teacher learning appears to be relevant when it focuses on teaching students at the respective school.
2. There must be collaboration involving sharing of knowledge among educators.
3. There must be collaborative opportunities within learning communities of educators.
4. There must be effective professional development that is ongoing and sustained over time.
5. Teachers require PD that encourages them to be active learners.
6. Teachers require PD that enhances teachers' pedagogical skills and content knowledge.
7. Successful PD requires facilitation that acknowledges how teachers actively construct new meaning based on prior knowledge and experiences.
8. Successful PD requires a genuine focus on improving learning outcomes for students. (Patton et al., 2015, p. 29-35).

Thomas, Bell, Spelman, and Briody (2015), discussed their study which spanned a three-year time period using a sample size of five faith based elementary schools; to understand the impact of instructional coaching experience by recording coaching conversations and interactions to determine if the type of coaching conversation changed over time. Instructional coaches play a significant role in helping teachers take all of the practices and ideas they have learned and then implement them in effective ways to increase student achievement. Instructional coaches provide many ways to support and guide teachers in a partnership model such as: providing constructive feedback, observing teaching, and actively engaging teachers in practices embedded in meaningful growth conversations and discussions. (Thomas et al., 2015). Coaching conversations are

utilizing "transformative learning which essentially is a learning process that assists people with making meaning of their experiences" (Thomas et al., 2015, p. 2). In this research study, coaching conversations moved from implementation type conversations to transformative learning conversations, where the teacher's discussed their change in practice after being observed by the instructional coach. (Thomas et al., 2015).

In the research study by Knowlton, Fogelman, Reichsman, and Oliveira (2015), higher education science faculty were involved in a K-12 scientist-teacher partnership as a source of faculty professional development. This study came from a need to support students pursuing STEM coursework. The reason for the study also focused on how science professors were developed as educators/researchers. Studies show there have been collaborations between scientists and teachers as a source of teacher PD. This study was five-year collaboration between the Rhode Island Technology Enhanced Science project and the National Science Foundation Math and Science Partnership project, which included most of the state's school districts. (Knowlton et al., 2015). Overall success was reported at the conclusion of the study. A few of the study results were: the higher education faculty was able to use their knowledge about science to contribute to teacher's knowledge about science content in the classroom; relationships were built with a teacher in which both partners contributed unique and valuable strengths; use what was learned to create new or revise existing college level materials. (Knowlton et al., 2015). In conclusion, the study solidified collaborative practices between the K-12 teachers and the scientists.

The research study by Chamberlin and Chamberlin (2010), focused on three field experience visits for twenty- three pre-service teachers, who implemented mathematical problem solving tasks with third-sixth grade gifted students. Pre-service teachers rarely receive adequate preparation in gifted education; the training opportunities tend to be ineffective and highly insufficient. "Combining classroom discussions and field experiences with gifted students may better prepare pre-service teachers to meet gifted students' needs" (Chamberlin and Chamberlin, 2010, p. 381). The authors mentioned apathy and hostility in gifted education. Many educators feel that gifted students will succeed without interventions or support. Some educators may possess hostile views toward gifted programs or even gifted students.

Two other negative perceptions that have been found among pre-service and in-service teachers include the belief that acceleration has negative social consequences and a belief in student differences, which often results in gifted students being neglected so slower students can receive additional attention (Chamberlin and Chamberlin, 2010, p. 385).

"To produce creative thinkers, leaders, and problem solvers, we as educators need to advocate for methods that go beyond traditional instruction and encourage creative problem solving" (Allen, Robbins, Payne and Brown, 2016, p. 88). This research study concluded that the pre-service teachers learned that not all gifted students are alike in their skills or needs. "The literature is replete with suggestions that differentiation needs to be learner centered, meaning it builds on student knowledge, relies on ongoing assessment of learner understandings, and

focuses on student sense making" (Chamberlin and Chamberlin, 2010, p. 409). Finally, the results support the benefits of teachers in gifted education courses having field experiences in actual classrooms teaching gifted students.

SUMMARY AND CONCLUSIONS

In conclusion, this paper has reviewed the literature of current research regarding professional development in gifted education. It has presented many options of professional development for the gifted teacher. In summary, this paper displayed a comprehensive review of the literature by which the reader can determine their own conclusions about the importance of professional development.

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