Describing the professional development needs and retention of novice business education teachers in the state of Pennsylvania

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Abstract
Professional development (PD) and retention of teachers are very important to the teaching profession. The purpose of the study was to describe the perceptions of novice business education (BE) teachers in the state of Pennsylvania over three different categories, including their PD needs, likelihood to remain in their current position, and likelihood to remain at their current school district. The first category examined was guided using *Borich's Needs Assessment Model* framework, while the second and third categories were developed after an exhaustive review of the literature and examining what has not yet been described using *Borich's Needs Assessment Model* framework and this population of participants. The results indicated that novice Pennsylvania BE teachers perceived teaching business skills, the integration of technology, getting students to think critically, and assessment and student evaluation, as the most important areas of PD.

Introduction
The professional development (PD) needs and retention of teachers are two important factors within the field of education and especially in the field of business education (BE). New teachers to the field of education, referred to as novice teachers, are those teachers who are completing their first few years of teaching (Caspersen & Raaen, 2014). Novice teachers experience a litany of challenges as they begin their teaching career, which can affect their PD needs and whether they choose to remain in the profession (Clark, 2012) while acclimating to the demands of a new teaching career.

Nationally, teacher PD has gained much attention over the years, including how to effectively define and implement in-service training opportunities (Darling-Hammond et al., 2017; Learn, 2009). Teachers differ on what constitutes effective PD (Desmome & Garet, 2015; Kennedy, 2016; Stewart, 2014) and how to ensure that teacher PD is targeted and focused on their own needs for teaching. Kennedy (2016) also included recommendations for ongoing PD during a teacher's first two years, including suggesting that, "I [Kennedy] would urge researchers to monitoring student learning for 1 or 2 years beyond the close of the PD itself" (p. 974). Effective PD for teachers during their formative years of teaching may be a strong reason as to why

teachers choose to remain in the profession or leave teaching altogether (Eberhard, et al., 2000; Sargent, 2003). Additionally, teacher PD can assist with teacher retention during a teacher's formative years for those teachers who may not feel fully prepared for the demands of a new teaching job (Garcia & Weiss, 2019; Rodgers & Skelton, 2014).

Novice BE teachers are also required to maintain PD hours and this, in turn, can affect the retainment. In the state of Pennsylvania, novice BE teachers must complete certain requirements for their license once they enter the workforce. To earn a Level II PA teaching certification a teacher must earn 24 post baccalaureate credits and 6 must relate to their certification area or improve their professional practice (Pennsylvania Department of Education, 2021). In addition, many states require teachers to meet a certain amount of PD within a set period.

Purpose and Research Questions
The purpose of the study was to describe the perceptions of novice BE teachers in the state of Pennsylvania over three different categories, including their PD needs, likelihood to remain in their current position, and likelihood to remain at their current school district. Data were also collected regarding the participants' demographic backgrounds. The first category as part of the purpose of the study was guided using the Borich's Needs Assessment Model framework, while the second and third categories were developed after an exhaustive review of the literature and examining what has not yet been described using the *Borich's Needs Assessment Model* framework and this population of participants. Also collected were the demographic data of participants. The following research questions were developed to guide the purpose of the study.
1. What were the demographic characteristics of the convenience sample of novice Pennsylvania business education teachers?
2. What were the perceived professional development needs of the convenience sample of novice Pennsylvania business education teachers?
3. What is the perceived likelihood that novice Pennsylvania business education teachers from the convenience sample will remain at their current school and in the teaching profession?
4. What are the perceived reasons that novice Pennsylvania business education teachers from the convenience sample expressed as influencing their reasons to stay or remain in the teaching profession?

Review of the Literature
Professional development is continued education that professionals participate in after entering their professional careers (Antley, 2020). PD programs are meant to reinforce areas related to one's profession or introduce new concepts. In addition, PD can help an individual advance their career. Many fields such as education require professionals to complete in-service education and training in order to maintain their licensure or certification (Antley, 2020). PD in education typically refers to classes, workshops, seminars and conferences (Mizell, 2010). PD for the teaching profession has been integral in the development and refinement of skills, knowledge, and attitudes of educators (Aldosemani, 2019).

There are many benefits to developing professionally such as gaining and reinforcing knowledge while increasing one's expertise. An increase in knowledge also leads to increased self confidence in one's ability (Antley, 2020). In addition to the benefits provided to individuals,

schools are recognizing the importance PD can have on school improvement. PD can provide teachers with the knowledge to increase student engagement, learning and achievement (Borko et al., 2010).

In many school districts, administrators are often the ones involved in designing in school PD. Cannon et al. (2010) found that Idaho Career Technical Education (CTE) secondary principals perceived that the PD priorities for CTE teachers were to motivate students to learn, teach students to think critically and creatively, grant writing and funding opportunities, design and develop digital-age learning assessments, and teach learning disabled students. The majority of CTE PD research has focused on teaching and learning and program management. Kitchel et al. (2009) examined business and marketing teachers in Idaho. This study found the top topics of importance for the teachers as:
1.   were grant writing and funding opportunities;
2.   understanding federal, state, and local funding;
3.   establishing and organizing co-op/internships;
4.   developing an effective public relations program; and
5.   developing curriculum-based school-to-work/career activities.

There was some overlap between the Cannon et al. (2010) and Kitchel et al. (2009) studies, but also differences in what the principals and the business and marketing teachers perceived were important PD topics. There have been times when there may be a disconnect between what administrators perceived as important and what teachers believe to be important (Kitchel et al., 2009; Cannon et al., 2010). Therefore, a team effort between administration and teachers is the best approach when developing PD goals (Cannon et al., 2010; Mizell, 2010).
Retention

The United States is facing a teacher shortage and a teacher retention problem. García and Weiss (2019) found that 13.8% of public teachers were leaving their school or the teaching professional altogether.   There was a drop in the number of individuals completing a teacher preparation program of 27.4% from the 2008-09 school year to the 2015-16 school year (Weiss, 2019). The National Center for Education Statistics (2016) cited in a study of teachers from 2011-12 and 2012-13 that 8% left the teaching profession. To increase retention rates, it is important to determine what factors are important in a novice teacher's decision-making process. PD is one component that can assist educators in developing skills important for being an effective educator. Making it more likely to remain in the teaching profession (Huang & Cho, 2010).

Conceptual Framework
Scholarship on PD has shown the importance of well-designed needs assessment for effective in-service learning activities leading to continuous professional improvement (Guskey, 2000). Research by Borich (1980) on *needs assessment* served as the conceptual framework for this study. The *Borich's needs assessment* model seeks to uncover an individual's competency and proficiency in a certain area. A topic might seem important to an educator, but they might be proficient in that area and not need additional PD (Waters & Haskell, 1989). This model has been found to be an efficient way to include teachers and stakeholders in an engaging needs assessment process (Cannon et al., 2013).

The Borich (1980) model utilizes a descriptive survey which evaluates teachers' perceptions of "perceived level of importance" and "perceived level of competence" of constructs and practices related to specific disciplines of teaching (Cannon et al., 2013). Data is collected and analyzed comparing the "importance" with the "competence" results. A *mean weighted discrepancy score* (*MWDS*) is calculated and ranked. Items having the highest *MWDS* are deemed to be PD needs with the highest priority (Cannon et al., 2013). Borich's (1980) model has been used by numerous CTE and BE researchers as a method to determine PD needs over the past quarter century (Garton & Chung, 1996, 1997; Edwards & Briers, 1999; Joerger, 2002; Layfield & Dobbins, 2002; Cannon et al., 2010; Kitchel et al., 2010; Kitchel et al., 2010; Cannon et al., 2011; Cannon et al., 2012, Hendon et al., 2019).

Research Design and Methodology
The instrument for this study was developed from one used for previous research exploring the PD needs of CTE teachers (Duncan et al., 2006; Cannon et al., 2010). The instrument was in the form of an online questionnaire. It was revised to fit the scope and research questions of the study, and it also went through validity and reliability testing. A diverse panel of experts that included current BE teacher educators and researchers reviewed the questionnaire and provided feedback. A pilot test with current BE teachers who were not a part of the target population also completed the questionnaire and provided feedback. Reliability coefficients in the form of *Cronbach alphas* were calculated for each subscale of the questionnaire and also an overall score. Overall, the Cronbach Alpha score was .777. According to the guidance of internal reliability and scales on a questionnaire as delineated by Gliem and Gliem (2003), each scale had a rating of "Excellent" or "Good", indicating sufficient levels of internal consistency. Data from the questionnaire were analyzed using descriptive statistics and qualitatively for themes.

A convenience sampling technique was used (Creswell, 2012), and the survey was distributed to participants using Qualtrics as well as implementing suggestions for best practices for online data collection as espoused by Dillman et al. (2014). It should be noted that a convenience sampling technique produces non-randomized results, which can in turn affect generalizability outside of the sample. The convenience sample would also greatly impact research questions numbers one and three as part of the results. A prenotice was sent to participants, and two rounds of data collection occurred during the months of May and June. To encourage participation, three $25 Amazon.com gift cards were offered through a random drawing of participants who completed the questionnaire. Overall, 27 teachers fully completed the questionnaire.

Twenty-five statements were included on the questionnaire regarding PD needs including program operation and management, usage of instructional strategies, and maintaining a BE program. Participants selected their "Level of Importance" and "Level of Competence" for each statement. Each scale ranged from 1 to 5, with "1" indicating low agreement with a particular statement, "3" indicating a medium agreement with each particular statement, and a "5" indicating strong agreement with that particular statement.

PD needs were determined through the calculation of *Mean weighted discrepancy scores* (*MWDS*). Previous research focused on CTE PD have used the *MWDS* to prioritize needs (Cannon et al. 2011; Cannon et al., 2012; Duncan et al., 2006; Garton & Chung, 1996; Kitchel et al., 2009; Kitchel et al., 2010; Layfield & Dobbins, 2002). The researchers used the data for

perceived "Level of Importance" and "Level of Competence" to calculate the *MWDS* for each item. The scores were then ranked with items having the highest MWDS being the most pressing PD needs. Institutional review board approval was required and obtained for this study.

Results and Findings
The results of the study included demographic information of the participants, the ranking of perceived PD, and the likelihood of remaining in the teaching profession. All results are summarized below.

Research Question #1: *What were the demographic characteristics of the convenience sample of novice Pennsylvania business education teachers?*
Overall, 16 females and 11 males completed the questionnaire, with a total of 27 participants. Participant demographic information also included age, years of teaching experience, highest degree level attainment, number of students at each school, number of business education teachers in each school, grade level(s) taught, and background of the school. Participants had an average age of 37 ($SD = 11$) and had 2.93 years of teaching experience ($SD = 1.75$). Eight participants held a bachelor's degree and 19 held a master's degree; the average number of students at each school was 1,307.89 ($SD = 743.34$). The average number of business teachers at each school was 3.63 ($SD = 2.34$). Fifteen participants worked in a community categorized as "rural", seven in a community categorized as an "urban cluster", and five in a community categorized as an "urbanized area". Most of the participants (N=19) were teaching at the high school level, seven taught at the middle school and high school levels, and one taught at elementary and middle school levels.

Research Question #2: *What were the perceived professional development needs of the convenience sample of novice Pennsylvania business education teachers?*
Data analysis and results for Research Question 2 can be found in Table 2. Participants ranked 25 different statements which were analyzed for the teachers' perceived levels of importance and perceived levels of competence on a Lykert type scale of 1-5. Participants identified *Teaching skills and concepts in your area of business* ($M = 4.81$ $SD = 0.48$), *Integrating current advances in technology into the curriculum* (M = 4.74; $SD = 0.66$), *Teaching students to think critically and creatively* (M = 4.7, $SD = 0.54$) as the three most important perceived business education teaching and learning constructs. The results also indicated that participants perceived *Conducting needs assessments and surveys to determine the courses that should be taught* ($M = 4.00$, $SD = 0.96$), *Developing an effective public relations program* ($M = 3.74$, $SD = 0.94$), and *Planning and conducting student field trips* ($M = 3.63$, $SD = 1.08$) as their least important areas of business teaching and learning.

Participants identified *Using computers/technology in classroom teaching* ($M = 4.48$, $SD = 0.75$) and *Organizing and supervising computer instruction* ($M = 4.48$, $SD = 0.7$) as their most competent areas of business education teaching and learning. These were followed by *Teaching skills and concepts in your area of business* ($M = 4.41$, $SD = 0.75$), *Using multimedia equipment in classroom teaching as their second choice* ($M = 4.41$, $SD = 0.75$), and *Assessing and evaluating student performance* ($M = 4.37$, $SD = 0.63$). The results also indicated that participants perceived *Evaluating the local Business program* ($M = 3.67$, $SD = 0.96$), *Teaching*

learning disabled students (*M* = 3.63, *SD* = 0.93), and *Developing an effective public relations program* (*M* =3.48, *SD* = 0.89) as their least competent areas.

Perceived PD needs of novice Pennsylvania Business teachers was determined by calculating *Mean Weighted Discrepancy Scores* (*MWDS*). The highest *MWDS* scores were considered the items as the most important PD needs. Items with the highest *MWDS* were as follows:

1. "Integrating current advances in technology into the curriculum" (*MWDS* = 3.69);
2. "Teaching learning disabled students" (*MWDS* = 3.62);
3. "Teaching gifted and talented students" (*MWDS* = 3.43);
4. "Teaching students to think critically and creatively" (*MWDS* = 2.61); and
5. "Integrating life skills into the curriculum" (*MWDS* = 2.59).

The items with the lowest MWDS, and therefore the least important perceived PD needs were as follows:

1. "Planning and conducting student field trips" (*MWDS* = -0.81);
2. "Organizing and supervising computer instruction" (*MWDS* = 0.17);
3. "Developing relations with fellow teachers and administrators" (*MWDS* = 0.32);
4. "Locating and selecting student references and materials" (*MWDS* = 0.46); and
5. "Conducting parent/teacher conferences" (*MWDS* = 0.46).

Research Question #3: *What is the perceived likelihood that novice Pennsylvania business education teachers from the convenience sample will remain at their current school and in the teaching profession?*

Participants rated the likelihood that they would return to their current teaching position and also to remain in the profession, which included written responses specifically stating why they would stay or leave the profession. Participants rated the question of likelihood to return to teaching for the next school year as "Extremely likely" (N=23), "Somewhat likely" (N=3), and "Somewhat unlikely" (N=1). Participants were also asked the likelihood that they would return to their current teaching position and school as "Extremely likely" (N=22), "Somewhat likely" (N=4), and "Somewhat unlikely" (N=1).

Research Question #4 *What are the perceived reasons that novice Pennsylvania business education teachers from the convenience sample expressed as influencing their reasons to stay or remain in the teaching profession?*

The last part of the questionnaire was open-ended and asked participants to describe reasons to remain in the teaching profession. A qualitative analysis was performed and researchers counted the number of times the following themes appeared through open-ended questions:

1. a love of teaching (44%);
2. administrative support or lack of administrative support (30%);
3. varied job responsibilities including the number of courses and types of courses taught (19%);
4. salary expectations (11%);
5. the environment and culture of the school (11%); and
6. support from other colleagues (9%).

Table 1
Importance and competence ratings from each statement on the questionnaire

Statement from questionnaire	Importance		Competence		
	M	*SD*	M	*SD*	MWDS
Integrating current advances in technology into the curriculum.	4.74	0.66	3.96	0.85	3.69
Teaching learning disabled students.	4.44	0.75	3.63	0.93	3.62
Teaching gifted and talented students.	4.63	0.56	3.89	1.01	3.43
Teaching students to think critically and creatively.	4.7	0.54	4.15	0.72	2.61
Integrating life skills into the curriculum.	4.67	0.73	4.11	0.97	2.59
Evaluating the local Business program.	4.22	0.8	3.67	0.96	2.34
Establishing and organizing work-based learning.	4.44	0.75	3.96	1.06	2.14

Teaching skills and concepts in your area of business.	4.81	0.48	4.41	0.75	1.96
Teaching students problem-solving and decision-making skills.	4.67	0.68	4.3	0.72	1.73
Providing career exploration activities in your business area.	4.59	0.75	4.22	0.93	1.7
Developing performance based assessment instruments.	4.56	0.64	4.19	0.68	1.69
Determining the content that should be taught in specific courses	4.44	0.75	4.07	0.87	1.64
Managing student behavior problems.	4.56	0.64	4.22	0.93	1.52
Motivating students to learn	4.56	0.64	4.22	0.85	1.52
Assessing and evaluating student performance.	4.59	0.75	4.37	0.63	1.02

Developing an effective public relations program.	3.74	0.94	3.48	0.89	0.97
Conducting needs assessments and surveys to determine the courses that should be taught.	4.00	0.96	3.78	1.01	0.89
Using computers/technology in classroom teaching.	4.67	0.83	4.48	0.75	0.86
Embedding national and state business education standards into the business education curriculum.	4.3	1.03	4.11	0.89	0.8
Using multimedia equipment in classroom teaching.	4.52	0.64	4.41	0.75	0.5
Conducting parent/teacher conferences.	4.15	0.82	4.04	0.94	0.46
Locating and selecting student references and materials.	4.15	0.86	4.04	0.85	0.46

Developing relations with fellow teachers and administrators.	4.33	0.96	4.26	0.76	0.32
Organizing and supervising computer instruction.	4.52	0.8	4.48	0.7	0.17
Planning and conducting student field trips.	3.63	1.08	3.85	1.03	-0.81

Note: MWDS is an acronym for "Mean Weighted Discrepancy Scores"

Limitations
Because of the nature of the convenience sample of 27 novice Pennsylvania BE teachers, the findings of the study are limited. Generalizations should not be made beyond this group. However, the results of the study provide baseline data about the field of Business Educators and the variables of PD and retention.

Conclusions, Discussion, & Recommendations
The Borich's Needs Assessment model measures the gap between "what is" and "what could be" (Borich, 1980). The results of the research study concluded which PD needs, as indicated by statements on the questionnaire, that novice BE teachers perceived to be the most important and most competent. By having participants select statements and ranking them according to their own perceptions of important items and the perceived level of competency for these items, it can be concluded that novice Pennsylvania BE teachers have certain PD needs that are applicable to them.

The results of the study indicated that novice Pennsylvania BE teachers who completed this study's survey instrument perceived that integrating current advances in technology into the curriculum as the most pressing PD need. These teachers perceived that PD related to teaching students with special needs was also a high priority need. Specifically, teaching learning disabled students and teaching gifted and talented students. Teaching students soft skills such as critical and creative thinking and integrating these and other life skills into the curriculum rounded out the top five of PD needs as perceived by the novice Pennsylvania BE teachers who were a part of this study's convenience sample.

Previous PD needs assessment research related to the Business discipline found somewhat similar results. Scholars from Idaho determined the following perceived PD priorities for Business teachers in that state:

1. developing applications through programming languages;
2. developing performance based assessment instruments;
3. integrating science standards into the CTE curriculum;
4. embedding graduation standards into the CTE curriculum; and
5. teaching problem-solving & decision-making skills (Kitchel, et al. 2010).

Similarities can be seen between integrating of current technological advances into the curriculum (this study) and developing applications through programming languages (Kitchel et al., 2010). Also, teaching soft skills of critical/creative thinking (this study) is similar to teaching problem solving and decision-making skills (Kitchel et al., 2010). A consistent theme of utilizing technology and teaching life skills has emerged in BE over the past decade. With the need to utilize online, distance, and remote delivery of instruction due to Covid 19 mandates, it is clear that PD related to integrating technology into curricula and learning environments will continue to be a pressing priority. The use of technology in the curriculum and to deliver instruction will provide teachers opportunities to prepare a diverse group of students with skills to be used for successful college experiences, entry into the workforce, and to lead a productive and happy life.

Business Education programs have evolved to serve a diverse population of students. The need to create engaging learning environments for students with unique and individual learning needs is clear. Findings from this research demonstrated the need to provide quality PD opportunities to novice Pennsylvania BE teachers. Many Business teachers have students with learning disabilities in classes along with students who have been identified as gifted and talented. Teaching students with diverse learning styles and needs presents a challenge that PD can provide teachers with the tools to overcome.

Participants reported numerous reasons for returning to teaching. These included levels of stress, support of the administration, love of learning and teaching, salary, variance in the school day, and love of the teaching profession. Some reasons that participants cited as influencing their decision to return to their current teaching position included support from co-workers and administration, work-safety issues, issues with student behavior, loving the job and opportunities, ability to coach, and work-life balance. These findings can also be used by stakeholders tasked with creating and implementing engaging PD for BE teachers in Pennsylvania. Specifically, those who design and develop PD for novice BE teachers should consider reasons for staying in teaching as a component in the planning for in-service training activities.

Several recommendations arise from the findings and conclusions of this research. These include designing appropriate and effective PD opportunities for novice Pennsylvania BE teachers, continuing to determine novice Pennsylvania BE teachers' areas of perceived lower competence, and tracking baseline data regarding novice BE teachers' likelihood to remain at their current school and in the teaching profession. It is recommended that school districts and Pennsylvania BE consultants design PD that addresses these areas, and that BE teacher preparation programs create learning environments which integrate these components for pre-service BE teachers' learning opportunities. This also follows the recommendations indicated by Desimone and Garet (2015) ensuring that PD is content focused. Novice BE teachers may perceive PD activities more

valuable if PD opportunities are targeted and unique for the discipline. This in turn can lead to more effective training and continued professional growth. Long term, this focused PD can lead to higher retention rates. Higher retention rates will mean more teachers with the valuable experience necessary for student learning and achievement.

From the findings, these novice Pennsylvania BE teachers' most pressing PD needs were revising curriculum to utilize the latest technological advances, teaching a diverse array of student backgrounds and exceptionalities, teaching students critical and creative thinking skills, and providing students opportunities to develop life skills. These findings were similar to previous research identifying PD needs for Business teachers and other CTE teachers. Kitchel et al. (2010) found the following in-service training needs for Idaho Business teachers; teaching students critical and creative thinking skills, the creation of "digital-age" assessments of learning, and student motivation to learn.   Cannon et al. (2012) found the PD needs for secondary CTE teachers as teaching critical and creative thinking, motivating students to learn, designing learning experiences and assessments utilizing current technology.

As a result of the study, educational stakeholders can plan and implement effective PD opportunities that directly impact novice Pennsylvania BE teachers. This recommendation reflects the suggested guidance of targeted PD as espoused by (Darling-Hammond et al., 2017). Targeted PD can benefit novice teachers and allow them to have a voice in the types of PD that they participate in according to their needs. Pennsylvania educational leaders should use the findings as a component for the planning of PD activities specifically catered to beginning Business teachers. Training activities designed to meet the needs of this population of Pennsylvania teachers should be a component of retention programs.

Recommendations for future research
This study sought to understand the PD needs of novice Pennsylvania BE teachers based on common PD topics. However, some districts take the viewpoint that PD should be based on student needs. Additional areas of research may include asking business educators if they are aware of their student needs and what PD is necessary. This would be a different method than the Borich (1980) *Needs Assessment* and could be used as another tool to validate the identification of PD needs. Researchers should also explore ways to include the needs of business and industry in the identification of Business teachers training needs.

As with other studies which utilized the Borich (1980) *Needs Assessment* instrument, it is recommended that BE researchers continue to replicate research which has added to the scholarship of PD needs assessment. The replication process will continue to improve the instrument and strengthen the validity and reliability of this PD needs assessment model.

References
Aldosemani, T. (2019). Inservice teachers' perceptions of a professional development plan based on SAMR Model: A case study. *Turkish Online Journal of Educational Technology - TOJET*, *18*(3), 46–53. https://files.eric.ed.gov/fulltext/EJ1223786.pdf
Antley, T. (2020, July 16). *What is professional development and why is it important?* WebCE. https://www.webce.com/news/2020/07/16/professional-development

Borich, G. (1980). A needs assessment model for conducting follow-up studies. *Journal of Teacher Education, 31*(3), 39-42. https://journals.sagepub.com/doi/pdf/10.1177/002248718003100310

Borko, H., Jacobs, J., & Koellner, K. (2010). Contemporary approaches to teacher professional development. *International Encyclopedia of Education*, *7*(2), 548-556. https://www.researchgate.net/profile/Jennifer-Jacobs-12/publication/242071048_Contemporary_approaches_to_teacher_professional_development/links/59fc9517458515d0706501b3/Contemporary-approaches-to-teacher-professional-development.pdf

Cannon, J. G., Kitchel, A., & Duncan, D. W. (2010). Identifying perceived professional development needs of Idaho secondary CTE teachers: Program management needs of skilled and technical science teachers. *Journal of Industrial Teacher Education, 47*(1), 43- 70. https://ir.library.illinoisstate.edu/cgi/viewcontent.cgi?article=1067&context=jste

Cannon, J. G., Kitchel, A., & Duncan, D. W. (2012). Perceived teaching and learning professional development needs of Idaho secondary Career and Technical Education teachers. *The Researcher*, *24*(1), 43-54. https://www.nrmera.org/wp-content/uploads/2016/02/Researcherv24n1Cannon.pdf

Cannon, J. G., Kitchel, A., Duncan, D. W., & Arnett, S. E. (2011). Professional development needs of Idaho Technology teachers: Teaching and learning. *Journal of Career and Technical Education*, *26*(1), 132-147. https://files.eric.ed.gov/fulltext/EJ940548.pdf

Cannon, J. G., Kitchel, A., & Tenuto, P. (2013). District superintendent perceptions of Idaho secondary CTE teachers professional development needs. *Journal of Career and Technical Education*, *28*(1), 39-55. https://files.eric.ed.gov/fulltext/EJ1043179.pdf

Cannon, J., Tenuto, P., & Kitchel, A. (2013). Idaho secondary principals perceptions of CTE teachers' professional development needs. *Career and Technical Education Research*, *38*(3), 257-272. https://www.ingentaconnect.com/content/acter/cter/2013/00000038/00000003/art00007#

Caspersen, J., & Raaen, F. D. (2014). Novice teachers and how they cope. *Teachers and Teaching, 20*(2), 189-211. https://oda.oslomet.no/oda-xmlui/bitstream/handle/10642/1801/1060843.pdf?sequence=2&isAllowed=y

Clark, S. K. (2012). The plight of the novice teacher. *The Clearing House: A Journal of Educational Strategies, Issues and Ideas, 85*(5), 197-200. https://www.tandfonline.com/doi/pdf/10.1080/00098655.2012.689783?casa_token=41ts-qIel2wAAAAA:v4z42T1rk9MafXgKGEcxT-XGzyADpcKXxsFE33V7fZC-KrkOJUgOoVnKhxtHzev06dDnHW3_egFz

Creswell, J. W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research.* Upper Saddle River, NJ: Pearson Education.

Darling-Hammond, L., Hyler, M. E., & Gardner, M. (2017). *Effective teacher professional development* (ED606743). ERIC. https://files.eric.ed.gov/fulltext/ED606743.pdf

Desimone, L. M., & Garet, M. S. (2015). Best practices in teachers' professional development in the United States. *Psychology, Society and Education, 7*(1), 252–263. http://repositorio.ual.es/bitstream/handle/10835/3930/Desimone%20En%20ingles.pdf?s

Dillman, D. A., Smyth, J. D., & Christian, L. M. (2014). *Internet, mail, and mixed-mode surveys: The tailored design method* (4th ed.). Wiley.

Duncan, D. W., Ricketts, J. C., Peake, J. B., Uessler, J. (2006). Teacher preparation and in service needs of Georgia agriculture teachers. *Journal of Agricultural Education*, *47*(2),

24-35. https://www.jae-
online.org/attachments/article/232/Duncan%20et%20al._Vol47_2_24-35.pdf

Eberhard, J., Reinhardt-Mondragon, P., & Stottlemyer, B. (2000). *Strategies for new teacher retention: Creating a climate of authentic professional development for teachers with three or less years of experienc*e (ED450116). ERIC. https://files.eric.ed.gov/fulltext/ED450116.pdf

Edwards, M. C., & Briers, G. E. (1999). Assessing the in-service needs of entry-phase agriculture teachers in Texas: A discrepancy model versus direct assessment. *Journal of Agricultural Education*, *40*(3), 40-49. https://jae-online.org/attachments/article/469/40-03-40.pdf

García, E., & Weiss, E. (2019, April 16). *U.S. schools struggle to hire and retain teachers: The second report in 'The perfect storm in the teacher labor market' series*. Economic Policy Institute. https://www.epi.org/publication/u-s-schools-struggle-to-hire-and-retain-teachers-the-second-report-in-the-perfect-storm-in-the-teacher-labor-market-series/

Garton, B. L., & Chung, N. (1996). The in-service needs of beginning teachers of agriculture as perceived by beginning teachers, teacher educators, and state supervisors. *Journal of Agricultural Education*, *37*(3), 52-58. https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.457.9611&rep=rep1&type=pdf

Garton, B. L., & Chung, N. (1997). An assessment of the in-service needs of beginning teachers of agriculture using two assessment modes. *Journal of Agricultural Education*, *38*(3), 51-58. https://www.jae-online.org/attachments/article/529/38-03-51.pdf

Gliem, J., & Gliem, R. (2003, October 8-10). *Calculating, interpreting, and reporting Cronbach's alpha reliability coefficient for Likert-type scales*. Midwest Research-to-Practice Conference in Adult, Continuing, and Community Education, Columbus, OH, United States.

Guskey, T. R. (2000). *Evaluating professional development*. Corwin Press.

Hendon, T., Hainline, M. S., Burris, S., Ulmer, J. D., & Ritz, R. A. (2019). Perceptions of high school cooperating agricultural teachers on the performance of student teachers. *Journal of Agricultural Education, 60*(1), 41-58. http://www.jae-online.org/attachments/article/2218/Hendon%20-%203.pdf

Huang, D., & Cho, J. (2010, Fall). Using professional development to enhance staff retention. *Afterschool Matters*, *2*, 9-16. http://niost.wcwonline.org/pdf/afterschoolmatters/asm_2010_12_fall/asm_2010_12_fall-2.pdf

Joerger, R. M. (2002). A comparison of the in-service education needs of two cohorts of beginning Minnesota agricultural education teachers. *Journal of Agricultural Education*, *43*(3), 11-24. https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.570.6656&rep=rep1&type=pdf

Kennedy, M. (2016). How does professional development improve teaching? R*eview of Educational Research, 86*(4), 945-980. https://journals.sagepub.com/doi/pdf/10.3102/0034654315626800?casa_token=zZfUXjmObi8AAAAA:VIrUEhFOT4L5YXjggFhUfDSpu_O-Mz2VqtiYwCQJdmlM73s7GeEUFKBpi6LLDfHmnUS1akYD6gNu

Kitchel, A., Cannon, J., & Duncan, D. (2009). Program management educational needs of Idaho Business and Marketing teachers. *Career and Technical Education Research*, *34*(3), 175-189. https://www.ingentaconnect.com/content/acter/cter/2009/00000034/00000003/art00005#

Kitchel, A., Arnett, S., Cannon, J., & Duncan, D. (2010). Program management needs of Family and Consumer Sciences teachers in Idaho. *Journal of Family & Consumer Sciences Education*, *28*(2), 48-59. https://natefacs.org/Pages/v28no2/v28no2Kitchel.pdf

Kitchel, A., Cannon, J., & Duncan, D. (2010). Professional development priorities of Idaho Business teachers: An examination of a set of competencies associated with teaching and learning. *The Delta Pi Epsilon Journal*, *52*(3), 138-151. https://www.proquest.com/openview/550c3bd65f873202d911836eeb321455/1?pq-origsite=gscholar&cbl=34490

Layfield, K. D., & Dobbins, T. R. (2002). In-service needs and perceived competencies of South Carolina agricultural educators. *Journal of Agricultural Education*, *43*(4), 46-55. https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.517.287&rep=rep1&type=pdf

Learn, H. (2009). High-quality professional development: A new definition. *Educational Leadership*, *66*(5), 46-53. http://lhili.jtsa.edu/uploads/1/2/0/9/120971506/teacher_learning-_what_really_matters_by_linda_darling_hammond.pdf

Mizell, H. (2010). *Why professional development matters*. Learning Forward. https://learningforward.org/wp-content/uploads/2017/08/professional-development-matters.pdf

National Center for Education Statistics. (2016). *Teacher Turnover: Stayer, movers and leavers*. Retrieved from https://nces.ed.gov/programs/coe/pdf/coe_slc.pdf.

Pennsylvania Department of Education. (2021). *Level I to level II*. Commonwealth of Pennsylvania.https://www.education.pa.gov/Educators/Certification/PAEducators/Pages/LevelItoLevelII.aspx

Rodgers, C., & Skelton, J. (2014). Professional development and mentoring in support of teacher retention. *Journal on School Educational Technology*, *9*(3), 1-11. https://files.eric.ed.gov/fulltext/EJ1097716.pdf

Sargent, B. (2003). Finding good teachers-and keeping them. *Educational leadership, 60*(8), 44-47. http://www.educationalleader.com/subtopicintro/read/ASCD/ASCD_293_2.pdf

Stewart, C. (2014). Transforming professional development to professional learning. *Journal of adult education*, *43*(1), 28-33. https://files.eric.ed.gov/fulltext/EJ1047338.pdf

Waters, R. G. & Haskell, L.J. (1989). Identifying staff development needs of cooperative extension faculty using a modified Borich's needs assessment model. *Journal of Agricultural Education*, *30*(2), 26-32. https://d1wqtxts1xzle7.cloudfront.net/48938019/30-02-26-with-cover-page-v2.pdf?Expires=1631822242&Signature=O1bSo78gL2jBjYYJ7S-5Fkbld4ZS8v2g4E53OTAfWpkxZKt8cwryu~bdGRQdCXZkqk4YsjvwjmCB2vHTsebMIF5M5LZYP~rxjtZovWyU2oI2anlewt-MfL273Nj6AiI5YKaSXpBOjiTQPEZ-xv-nxBW4XcRU4oOCM~7kZV5BI8U~YzHQMGvWyU~GDHEtgKtzp3D5IDfmVyufIbxima6rYQNBojPmeqKzT6MXjmXRwn0YmusD~1XJXnDv2nlBq7gSzbQi7waNk2NsnI-4mlHcSQw3ZxVCW4RvtN06pjf-H9dir4YbEF3fZMbsqoZ5hUbaRW2DBBZC2VZk3Gdmi4JEMw__&Key-Pair-Id=APKAJLOHF5GGSLRBV4ZA