

Beyond Technical Expertise: Professional Development Needs of Secondary Family and Consumer Sciences Teachers

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Abstract

The purpose of this study was to identify the teaching and learning professional development (PD) needs of secondary Family and Consumer Sciences (FCS) teachers in Idaho. Guided by Danielson's *Enhancing Professional Practice* (2007), Shulman's (2005) signature pedagogies framework, and Borich's (1980) *Needs Assessment Model*, a descriptive survey assessed teachers' perceived importance and competence across 22 teaching and learning competencies. The survey was distributed to 306 secondary CTE teachers, with 35 FCS responses received and 32 usable responses included in the analysis. *Mean Weighted Discrepancy Scores* (MWDS) were calculated to identify and rank perceived PD priorities. The highest-ranked needs included teaching students to think critically and creatively, integrating current advances in technology into the curriculum, teaching problem-solving and decision-making skills, planning cognitively engaging activities and assignments, and managing student behavior. Although respondents reported relatively high perceived competence in teaching technical skills and concepts within their CTE content areas, several of the largest discrepancies occurred in pedagogical competencies. These findings suggest that participating FCS teachers perceived greater PD needs in how they facilitate student learning than in technical content instruction alone. The findings provide direction for developing targeted, discipline-specific professional learning while highlighting the importance of continued research examining pedagogical development needs among FCS educators.

Keywords: Family and Consumer Sciences, professional development, teaching and learning, Career and Technical Education, needs assessment, Borich Model

Introduction

Career and Technical Education (CTE) plays a vital role in preparing students with the academic, technical, and employability skills needed for success in secondary education and an increasingly complex workforce. The quality of CTE programs depends substantially on the educators responsible for translating technical and occupational knowledge into meaningful learning experiences, and in fact, the Association for Career and Technical Education (ACTE, 2024) identifies effective instruction as a foundational component of high-quality CTE programs. Supporting this view, Conrad and Watkins (2021) argued that the effectiveness of CTE programs depends largely on the quality of the teachers and administrators responsible for delivering them. Effective CTE teaching therefore requires both technical expertise and the pedagogical capacity to engage students, develop higher-order thinking and problem-solving skills, assess learning, and connect instruction to authentic career contexts.

Professional development (PD) provides an effective strategy for strengthening instructional competence, supporting teacher growth, and improving student learning outcomes (Darling-Hammond et al., 2017; Desimone, 2009). Effective PD is sustained, content-focused, collaborative, and aligned with teachers' instructional responsibilities, enabling educators to refine their instructional practices while remaining current with industry standards, emerging technologies, and workforce expectations (Darling-Hammond et al., 2017; Desimone, 2009; Guskey, 2002). For CTE teachers, professional learning may therefore need to address both technical currency and the pedagogical demands of applied instruction.

The need for sustained, discipline-specific PD is particularly evident within FCS, a major discipline within CTE. FCS teachers deliver instruction across diverse content areas, including culinary arts, nutrition, child development, fashion, interior design, financial literacy, and hospitality, while also managing laboratory environments, supervising career and technical student organizations, coordinating work-based learning experiences, and maintaining alignment with industry standards (Arnett-Hartwick, 2020; Ropski et al., 2024). Because of these diverse responsibilities, teaching in FCS has been characterized as both demanding and time-intensive (Ropski et al., 2024). Consequently, FCS educators require ongoing PD that strengthens discipline-specific content knowledge while enhancing evidence-based instructional practices to effectively prepare students for college, careers, and lifelong success. The breadth of these responsibilities raises an important question regarding whether FCS teachers' greatest professional learning needs involve maintaining technical expertise or strengthening the pedagogical practices through which that expertise is taught.

Although PD is widely recognized as essential for improving teaching effectiveness, limited research has specifically examined the teaching and learning PD needs of secondary FCS teachers using a systematic needs assessment approach. Previous research has identified PD needs among CTE and FCS teachers, including needs associated with instructional practice, content knowledge, program management, and changing workforce expectations (Arnett-Hartwick, 2020; Cannon et al., 2012; Kitchel et al., 2010; Ropski et al., 2024). However, less is known about the specific teaching and learning competencies for which secondary FCS teachers perceive the greatest discrepancies between importance and their own competence. This distinction is important because competencies teachers perceive as highly important may not necessarily represent their greatest PD needs when they also perceive themselves as highly

competent in those areas. Conversely, competencies characterized by high perceived importance and lower perceived competence may represent more salient priorities for professional learning.

Systematically examining these discrepancies can provide a more precise understanding of FCS teachers' perceived PD priorities and help determine whether those priorities are concentrated primarily in technical content or in the pedagogical practices through which technical content is taught. Such evidence can inform professional learning within FCS while contributing to a broader understanding of teacher development needs within CTE. Accordingly, the purpose of this study was to identify the perceived PD needs related to teaching and learning competencies of secondary FCS teachers in Idaho.

Review of Literature

Teaching and Learning in Family and Consumer Sciences

Teaching and learning are central to effective CTE programs and represent a primary focus of teacher PD. For secondary FCS educators, effective instruction requires not only strong pedagogical knowledge but also the ability to integrate technical content, laboratory instruction, career preparation, and evidence-based teaching practices. This combination of pedagogical and technical responsibilities distinguishes CTE instruction from many traditional academic settings and creates professional learning needs associated with both what teachers teach and how they facilitate learning. Examining these dimensions provides a foundation for understanding the PD priorities of FCS teachers.

Within CTE, effective teaching extends beyond content delivery by integrating academic knowledge, technical skills, and authentic workplace experiences that prepare students for successful transitions to postsecondary education and careers (ACTE, 2024; Conrad & Watkins, 2021). Consequently, CTE educators must possess strong instructional knowledge and the ability to create meaningful learning experiences that connect classroom instruction with real-world applications. Unlike many traditional academic classrooms, FCS instruction frequently combines classroom learning with laboratory experiences, work-based learning, career exploration, and authentic performance assessments. These applied instructional contexts require teachers to translate technical knowledge into learning experiences through which students can practice, apply, and demonstrate knowledge and skills. Thus, technical expertise alone may be insufficient for effective FCS instruction without the pedagogical knowledge necessary to facilitate learning within applied and career-connected contexts.

Instructional competency encompasses the pedagogical knowledge and skills necessary for effective teaching, including the ability to design engaging instruction, facilitate learning, assess student performance, and adapt instruction to meet the needs of diverse learners (Darling-Hammond et al., 2017). Within FCS education, teachers deliver instruction across multiple program areas, including parenting, interior design, culinary arts, and fashion, while also facilitating work-based learning experiences, maintaining alignment with workforce standards, procuring instructional materials and laboratory supplies, managing laboratory environments, and supervising career and technical student organizations. The breadth and diversity of these

instructional responsibilities present unique challenges for FCS educators (Arnett-Hartwick, 2020). These responsibilities require two related forms of expertise: technical competence within FCS content areas and pedagogical competence in designing and facilitating effective learning experiences. Professional development priorities may therefore differ depending on the extent to which teachers perceive discrepancies between the importance of particular competencies and their competence in performing them.

Professional Development in CTE and FCS

Professional development is most likely to support instructional improvement when it is sustained, collaborative, content-focused, and aligned with teachers' identified instructional needs (Darling-Hammond et al., 2017; Desimone, 2009). Alignment with teacher needs is particularly important within CTE because educators must maintain both occupationally relevant technical knowledge and the pedagogical competence required to teach that knowledge effectively.

Professional development designed for general education teachers does not always address the specialized instructional responsibilities of CTE educators (Ropski et al., 2024). Unlike many traditional classroom teachers, CTE educators are responsible for integrating technical content, laboratory instruction, career preparation, work-based learning, industry standards, and career and technical student organizations into their instructional programs. Consequently, the professional learning needs of CTE teachers often differ substantially from those of teachers in traditional academic disciplines. Lange (2020) noted that the diverse educational backgrounds, industry experiences, and certification pathways common among CTE teachers make it difficult for generalized PD to adequately address their instructional needs. These differences suggest that CTE PD must account for both the technical demands of individual occupational fields and the pedagogical practices through which students develop and apply occupational knowledge and skills. For FCS educators, identifying which of these competencies represent the greatest perceived discrepancies can provide a more precise basis for prioritizing professional learning.

Although many FCS teachers prefer accessible, school-based PD opportunities (Arnett, 2026), the content of these experiences is often determined by administrators rather than the teachers who participate in them (Erwin, 2018). Research has demonstrated that teachers and administrators frequently differ in their perceptions of PD priorities, suggesting that professional learning may not always address the instructional competencies teachers view as most important (Cannon et al., 2010; Kitchel et al., 2009). These differences demonstrate the importance of systematically assessing teachers' own perceptions of professional learning needs rather than assuming that externally identified priorities correspond with the competencies teachers perceive as most important for their development.

Collectively, the literature suggests that professional learning for FCS teachers must respond to two interconnected demands: maintaining competence across diverse technical content areas and developing the pedagogical capacity to translate that expertise into effective learning experiences (Arnett-Hartwick, 2020; Darling-Hammond et al., 2017; Lange, 2020). However, identifying these broad demands does not establish which specific competencies teachers perceive as their

greatest priorities for continued development. A systematic needs assessment can address this distinction by examining the discrepancy between the importance teachers assign to individual competencies and their perceived competence in performing them.

Previous research has identified PD needs among FCS teachers related to instructional practice, content knowledge, and emerging workforce expectations (Arnett, 2026; Arnett-Hartwick, 2020; Ropski et al., 2024). Although these studies have identified broad PD priorities, less is known about the specific teaching and learning competencies for which FCS educators perceive the greatest discrepancies between importance and competence. In particular, existing research provides limited evidence regarding whether teachers' highest perceived development priorities are concentrated in technical content competencies or in the pedagogical practices through which technical content is taught. Examining these discrepancies can provide a more precise understanding of where participating FCS teachers perceive the greatest need for continued professional learning and provide an empirical basis for prioritizing PD within the distinctive instructional context of FCS education. This distinction also provides a foundation for examining whether FCS teachers' perceived professional learning priorities center primarily on maintaining technical expertise or strengthening the pedagogical practices through which technical knowledge is translated into student learning.

Conceptual Framework

Effective PD should reflect both the instructional characteristics of a discipline and the professional learning needs of its teachers. Within CTE, FCS integrates technical content, laboratory instruction, career preparation, work-based learning, and authentic learning experiences that distinguish its instructional practice from other educational disciplines. Accordingly, this study is conceptually informed by Danielson's (2007) framework, Shulman's (2005) signature pedagogies, and methodologically guided by Borich's (1980) Needs Assessment Model. Danielson's (2007) framework served as a guide for clustering the teachers' responsibilities into identifiable domains. Shulman's (2005) signature pedagogies framework provides a lens for understanding the discipline-specific nature of FCS instruction, while Borich's (1980) needs assessment model provided a systematic approach for identifying and prioritizing teachers' PD needs. Together, they provide complementary perspectives for examining the study's central problem: Danielson's (2007) framework informed the development of the survey items in the *Idaho Career and Technical Education Professional Development Needs Assessment (Idaho CTE-PDNA)* and served as the conceptual framework for organizing teaching practices that foster student engagement and learning. Signature pedagogies provided a conceptual lens for understanding how disciplinary knowledge is translated into teaching and learning, while the Borich model provided a mechanism for identifying discrepancies between the importance teachers assign to instructional competencies and their perceived competence in performing them.

Danielson's Enhancing Professional Practice

Danielson's (2007) framework for teaching is based on what is important for students to learn, the nature of learning and how to promote it, the nature of teaching, and the nature of

professionalism. Danielson's (2007) framework served as a guide for clustering the teachers' responsibilities into four identifiable domains:

1. planning and preparation
2. the classroom environment
3. instruction
4. professional responsibilities

Professional development is necessary to become a high-quality teacher, and teachers are responsible for identifying what PD they require (Danielson, 2007). Guided by Danielson, the items in the Idaho *CTE-PDNA* were categorized within the areas of technical CTE, student organization development, teaching and learning, and program management.

Signature Pedagogies

As defined by Shulman (2005), signature pedagogies shape how professionals think, perform, and act within a discipline. Signature pedagogies represent the distinctive instructional practices, values, and assumptions that characterize teaching and learning within a profession. Building on Shulman's work, Walker and Atkins (2021) argued that CTE disciplines also possess signature pedagogies that reflect their unique instructional practices, technical content, and workforce expectations. Consequently, effective PD should align with the instructional competencies required to prepare students for professional practice. Within FCS, instruction occurs across applied contexts that may include technical content, laboratory experiences, career preparation, work-based learning, and authentic application. Viewed through the lens of signature pedagogies, these instructional contexts require teachers not only to possess disciplinary knowledge but also to translate that knowledge into forms of teaching and learning appropriate to professional and career-related practice. The signature pedagogies framework therefore provides a useful conceptual lens for interpreting the pedagogical dimensions of FCS teaching and the PD competencies examined in this study.

Shulman (2005) described signature pedagogies as consisting of three interrelated structures: the surface structure, the deep structure, and the implicit structure. The surface structure reflects the observable acts of teaching and learning, the deep structure represents assumptions about how knowledge and skills are most effectively taught, and the implicit structure encompasses the professional values and dispositions embedded within a discipline (Shulman, 2005). The competencies examined in this study primarily concern observable instructional practices and teachers' perceptions of their capacity to facilitate learning. These competencies can be interpreted in relation to the surface and deep structures of signature pedagogies because they address both what teachers do instructionally and the pedagogical processes through which disciplinary knowledge and skills are developed. Rather than treating signature pedagogies as a direct measure, the framework is used as a conceptual lens for interpreting the instructional competencies and the pattern of PD priorities identified through the needs assessment. This distinction is particularly relevant to the present study because FCS teaching requires the integration of technical expertise with pedagogical practice. Examining teachers' perceived PD priorities through this lens provided a basis for considering whether the largest perceived

development needs are associated primarily with technical content or with the pedagogical practices through which teachers facilitate student learning.

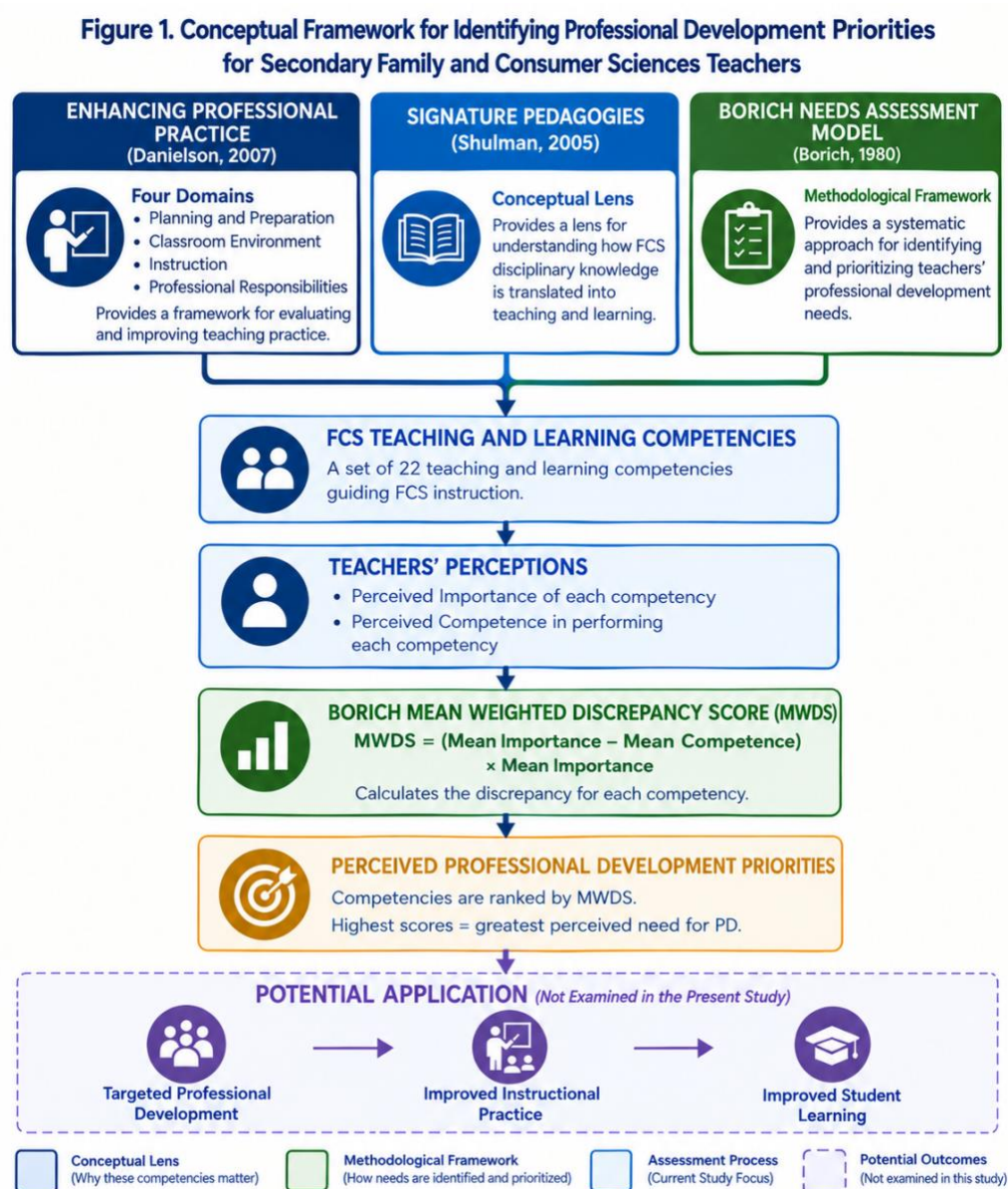
Borich Needs Assessment Model

Effective PD should be grounded in a systematic assessment of teachers' professional learning needs rather than assumptions about what teachers need to know. Guskey (2000) emphasized that well-designed needs assessments are essential for planning meaningful PD because they ensure learning opportunities reflect teachers' instructional responsibilities and professional contexts. Consistent with this perspective, the Borich Needs Assessment Model (1980) provides a systematic approach for identifying and prioritizing teachers' PD needs by comparing the perceived importance of instructional competencies with their self-perceived competence in performing those competencies. The model has been widely used by contemporary researchers to identify teaching and learning PD needs across CTE disciplines (Cannon et al., 2012; Duncan & Ricketts, 2008; Garton & Chung, 1996; Jeffery et al., 2022; Kitchel et al., 2010; Smalley et al., 2019).

The Borich model identifies PD priorities by measuring the discrepancy between the importance teachers assign to specific instructional competencies and their perceived competence in performing those competencies. Competencies with the largest discrepancies represent the highest priority areas for PD because they reflect instructional practices that teachers consider highly important but feel less prepared to implement effectively. The resulting discrepancy scores provide a mechanism for distinguishing between competencies that teachers consider important but perceive themselves as relatively competent in and competencies that are considered important but for which perceived competence is comparatively lower. This distinction allows PD priorities to be based on the relative magnitude of perceived need rather than importance or competence ratings alone (Cannon et al., 2013).

The Borich Needs Assessment Model has been applied extensively within CTE to identify discipline-specific PD priorities. Research conducted across multiple CTE disciplines has consistently demonstrated that PD needs vary by program area while reinforcing the value of systematic needs assessment. For example, Cannon et al. (2012) found that Idaho teachers prioritized instructional strategies related to critical thinking, creativity, and digital-age learning, whereas Kitchel et al. (2009) reported that Idaho business and marketing teachers identified grant writing, funding opportunities, and cooperative education as their highest PD priorities. More recently, Ropski et al. (2024) found that Idaho FCS teachers identified establishing student internships or jobs, keeping current on FCS trends and issues, and developing school-to-work and career activities as their greatest PD needs. Collectively, these studies demonstrate the application of the Borich model across CTE contexts and show that perceived PD priorities can differ across disciplines and instructional settings (Ropski, 2020; Washburn et al., 2001). In the present study, the Borich model provided the analytical mechanism for determining which teaching and learning competencies participating FCS teachers perceive as their highest PD priorities.

Taken together, Danielson's framework, signature pedagogies, and the Borich Needs Assessment Model serve distinct but complementary functions in the present study. Danielson (2007) provided a conceptual framework that guided the development of the *Idaho CTE-PDNA*. Signature pedagogies provided a conceptual lens for understanding the relationship between disciplinary knowledge and pedagogical practice in FCS instruction, and the Borich model provided the analytical process for identifying and prioritizing respondents' perceived PD needs. This combination allowed the findings to be considered not only as a ranking of PD priorities but also in relation to the broader distinction between technical expertise and the pedagogical practices through which disciplinary knowledge is translated into student learning. Figure 1 illustrates these complementary roles and the process through which perceived importance and competence are used to identify PD priorities.



Purpose and Objectives

The purpose of this study was to identify and prioritize the perceived in-service PD needs of Idaho secondary FCS teachers related to teaching and learning competencies. Specifically, the study examined the importance of selected teaching and learning competencies and their perceived competence in performing them and used the discrepancy between these perceptions to identify PD priorities. The following research objectives guided this study:

1. Describe the demographic characteristics of participating secondary FCS teachers in Idaho, including gender, stage of teaching career, age in years, and community type.
2. Describe participating teachers' perceptions of the importance of selected teaching and learning competencies and their perceived competence in performing those competencies.
3. Identify and prioritize the teaching and learning competencies for which participating secondary FCS teachers report the greatest perceived PD needs using the Borich Needs Assessment Model.

Methods

This study employed a quantitative descriptive survey design to identify the PD needs of Idaho secondary FCS teachers related to teaching and learning competencies. The study was conceptually guided by Danielson's (2007) framework and Shulman's (2005) signature pedagogies framework, while Borich's (1980) Needs Assessment Model provided an analytic approach for identifying and prioritizing the perceived PD needs. The following sections describe the research design, population and sampling procedures, instrumentation, data collection procedures, and data analysis methods used to address the study's research objectives. Teachers rated the perceived importance of selected teaching and learning competencies and their perceived competence in performing each competency. These ratings were used to calculate *Mean Weighted Discrepancy Scores* (MWDS).

Research Design

A descriptive survey research design was selected to systematically examine secondary FCS teachers' perceptions of their professional development needs related to teaching and learning competencies. Descriptive survey research is appropriate when the purpose is to describe characteristics, perceptions, or conditions within a defined population without attempting to establish causal relationships (Creswell & Guetterman, 2025). In this study, the design allowed teachers to report both the perceived importance of each teaching and learning competency and their perceived level of competence, providing the data necessary to identify and prioritize areas of professional development need.

Respondents rated both the perceived importance and their perceived level of competence for each teaching and learning competency. These ratings were subsequently used to calculate *Mean Weighted Discrepancy Scores* (MWDS), which were used to prioritize PD needs by weighting the discrepancy between perceived importance and competence according to the importance assigned to each competency (Borich, 1980). The use of MWDS is consistent with Borich's (1980) methodology and has been widely employed in CTE needs assessment research to

identify and prioritize PD needs (Cannon et al., 2010, 2012, 2013; Duncan et al., 2008; Edwards & Briers, 1999; Jeffery et al., 2023). Accordingly, the descriptive survey design provided an appropriate methodological approach for systematically identifying PD priorities related to the teaching and learning competencies that characterize effective FCS instruction.

Population and Sampling

The target population consisted of secondary FCS teachers employed in Idaho during the 2024–2025 academic year. Because the statewide population of secondary FCS teachers was relatively small, a census sampling approach was employed, inviting all identified teachers to participate in the study. A census approach was appropriate because it provided every member of the target population an opportunity to participate and facilitated a comprehensive assessment of the perceived PD needs of Idaho secondary FCS teachers.

The sampling frame consisting of 306 CTE identified teachers was obtained through the Idaho Division of Career Technical Education (IDCTE) and used to distribute the electronic survey. Participation was voluntary. A total of 35 (11.4%) FCS teachers responded to the survey. Following data screening, 32 (91.4%) of the 35 completed surveys were determined to be usable and provided a delivered sample of 10.4% (n=32) for final analysis. Consequently, the findings represent the perceptions of the responding teachers and should be interpreted within this context. Because participation was voluntary, the achieved sample represents respondents to the census invitation rather than a probability sample drawn from the target population. Accordingly, findings are interpreted as reflecting the perceptions of participating teachers. Potential nonresponse bias was examined through comparisons of early and late respondents as described in the Data Analysis section.

Instrumentation

Data were collected using an adapted Professional Development Needs Assessment instrument grounded in Borich's (1980) Needs Assessment Model. Participants rated the perceived importance of each competency (1 = Not Important to 5 = Very Important) and their perceived competence (1 = Not Competent to 5 = Highly Competent). Paired ratings were used to calculate *Mean Weighted Discrepancy Scores* (MWDS) and rank perceived PD priorities.

The instrument consisted of two sections. The first collected demographic and professional characteristics, and the second included 22 teaching, learning, and technical competencies relevant to FCS education. Competencies were adapted from established CTE PD needs assessment instruments (Cannon et al., 2010, 2012, 2013; Duncan et al., 2008; Edwards & Briers, 1999; Jeffery et al., 2023) and revised for secondary FCS teachers in Idaho. Shulman's (2005) signature pedagogies framework provided a conceptual lens for interpreting the competencies.

Content Validity

Content validity was assessed using Lawshe's (1975) Content Validity Ratio (CVR) and was reviewed by seven CTE professionals: one secondary school superintendent, one university faculty member, two community college faculty members, and three experienced secondary CTE

teachers. Panelists evaluated each competency for relevance, clarity, and alignment with secondary FCS education. Twelve competencies received unanimous ratings as essential (CVR = 1.00). The remaining competencies were reviewed using CVR results and panel feedback and revised as appropriate. The final instrument included 22 competencies.

Pilot Testing and Reliability

The instrument was pilot tested with 10 participants with characteristics similar to the target population to assess item clarity, survey functionality, and usability. Feedback informed minor revisions, and pilot responses were excluded from the final analysis. Internal consistency was assessed separately for the importance and competence scales using Cronbach's alpha. The importance scale yielded $\alpha = .86$, and the competence scale yielded $\alpha = .91$. Reliability analyses were conducted using IBM SPSS Statistics (Version 29).

Data Collection

Prior to data collection, approval for the study was obtained from the University of Idaho Institutional Review Board (IRB). The survey was administered electronically using Qualtrics® and distributed to all 35 identified secondary FCS teachers in Idaho. The first page of the survey contained an informed consent statement describing the purpose of the study, the voluntary nature of participation, and participant confidentiality. Participants provided electronic informed consent before accessing the survey.

The survey was distributed using a modified version of Dillman et al.'s (2014) Tailored Design Method for electronic surveys. An initial invitation email was followed by four reminder emails distributed throughout the data collection period to encourage participation. Minor adjustments to the reminder schedule were made because of technical issues encountered during survey administration; however, all participants received the planned sequence of reminder contacts. Survey responses were collected electronically, stored securely, and analyzed in aggregate to protect participant confidentiality. Of the 35 responses received, 32 completed surveys met the inclusion criteria and were retained for analysis.

Data Analysis

Data were analyzed using IBM SPSS Statistics (Version 29) and the *Excel-Based Mean Weighted Discrepancy Score (MWDS) Calculator* developed by McKim and Saucier (2011). Descriptive statistics, including frequencies, percentages, means, and standard deviations, were calculated to summarize participant characteristics and responses to the teaching and learning competency items.

Professional development priorities were identified using Borich's (1980) Needs Assessment Model. *Mean Weighted Discrepancy Scores (MWDS)* were calculated by subtracting each participant's perceived competence rating from the corresponding importance rating, multiplying the resulting discrepancy score by the mean importance rating for each competency, and averaging the weighted discrepancy scores across respondents (Borich, 1980; Cannon et al.,

2013; McKim & Saucier, 2011). Competencies were then ranked according to their MWDS values, with higher scores indicating higher priority PD needs.

To assess the potential for nonresponse bias, responses from early and late participants were compared using an independent-samples *t* test, consistent with recommendations for survey research (Lindner et al., 2001; Miller & Smith, 1983; Radhakrishna & Doamekpor, 2008). No statistically significant differences were found between early and late respondents on either importance or competence ratings ($p > .05$), suggesting that the respondent sample was representative of the target population with respect to the variables examined. Consequently, the findings are unlikely to have been meaningfully influenced by nonresponse bias.

The methodology employed in this study was designed to provide a systematic and reliable assessment of the PD needs of Idaho secondary FCS teachers. Through the use of an established needs assessment framework, a validated survey instrument, and appropriate data collection and analysis procedures, the study identified and prioritized teaching and learning competencies requiring additional PD. The following section presents the findings of the study.

Findings

The purpose of this study was to identify the perceived PD needs of secondary Idaho FCS teachers related to teaching and learning competencies. Findings are presented according to the study's research objectives. The first section summarizes participant demographic characteristics. The second section reports teachers' perceived importance and competence ratings for each competency. The final section presents the *Mean Weighted Discrepancy Scores* (MWDS) used to identify priority PD needs.

Research Objective 1: *Describe the demographic characteristics of Idaho secondary Family and Consumer Sciences teachers*

The 32 FCS teachers who participated in the study were predominantly female (96.9%) and represented diverse certification pathways, teaching experience levels, ages, and community settings. Most respondents were in the early stage of their teaching careers ($n = 23$, 71.8%) and taught in rural communities ($n = 19$, 59.3%). Participants were distributed across all age categories with the largest proportion between 45 and 54 years of age (28.1%), followed by those aged 55-64 (25.0%), 35-44 (18.8%), 25-34 (15.6%), and 65 or older (6.3%). Participant demographic characteristics are presented in Table 1.

Table 1*Participant Demographic Data (N = 32)*

		<i>f</i>	%
Gender	Female	31	96.9
	Male	1	3.1
Stage of Teaching Career	Early (0-10)	23	71.8
	Mid (11-25)	5	15.6
	Late (26+)	4	12.5
Age in Years	25-34	5	15.6
	35-44	6	18.8
	45-54	9	28.1
	55-64	8	25.0
	65+	2	6.3
Type of Community	Rural	19	59.3
	Suburban	7	21.8
	Urban	2	6.3

Note. N = 32. Frequencies and percentages reflect the number of respondents who provided information for each demographic characteristic. Two respondents did not report their age, and four did not report their community type. Percentages were calculated using the total sample size (N = 32); therefore, percentages for some demographic characteristics do not total 100%.

Taken together, these demographic characteristics provide context for interpreting participants' perceptions of the importance, competence, and PD priorities related to teaching and learning competencies. Research Objective 2 examined teachers' perceived importance and competence ratings for each competency.

Research Objective 2: *Determine Idaho secondary Family and Consumer Sciences teachers' perceived levels of importance and competence related to teaching and learning competencies*

Teachers rated the importance of and their perceived competence in each of the 22 teaching, learning, and technical FCS competencies using separate five-point Likert-type scales. Overall, respondents assigned high importance ratings to most competencies. The highest perceived importance ratings were for teaching skills and concepts in the teacher's area of CTE (M = 4.88), teaching students problem-solving and decision-making skills (M = 4.72), teaching students to think critically and creatively (M = 4.63), managing student behavior problems (M = 4.59), and planning cognitively engaging activities and assignments (M = 4.53). The lowest perceived importance ratings were for conducting an adult program (M = 2.70), integrating AI in the classroom (M = 3.34), using AI in the profession (M = 3.41), and using Career and Technical Student Organizations (CTSOs) as part of teaching and learning (M = 3.44). Complete importance, competence, and *Mean Weighted Discrepancy Scores* are presented in Table 2.

Respondents also reported relatively high levels of perceived competence across many areas. The highest perceived competence ratings were for teaching skills and concepts in their CTE area ($M = 4.38$), organizing and supervising teaching laboratories ($M = 4.16$), teaching students problem-solving and decision-making skills ($M = 4.06$), using instructional materials and resources in teaching ($M = 4.06$), and using computers in classroom teaching ($M = 4.03$). The lowest perceived competence ratings were for using AI in the profession ($M = 2.94$), conducting an adult program ($M = 3.03$), integrating AI in the classroom ($M = 3.09$), and integrating current advances in technology into the curriculum ($M = 3.38$). Across the 22 competencies, perceived importance ratings were generally higher than perceived competence ratings, with the magnitude of these differences varying by competency.

Research Objective 3: *Identify the perceived in-service professional development needs of Idaho secondary Family and Consumer Sciences teachers related to teaching and learning competencies*

Professional development priorities were identified using *Mean Weighted Discrepancy Scores* (MWDS). Higher MWDS values indicated greater discrepancies between perceived importance and competence and, therefore, higher relative PD priorities. The highest-ranked PD need was teaching students to think critically and creatively (MWDS = 4.49). Other high-priority needs included integrating current advances in technology into the curriculum (MWDS = 3.10), teaching students problem-solving and decision-making skills (MWDS = 3.10), planning cognitively engaging activities and assignments (MWDS = 2.97), managing student behavior problems (MWDS = 2.73), teaching students with learning disabilities (MWDS = 2.64), motivating students to learn (MWDS = 2.64), and teaching skills and concepts in the teacher's area of CTE (MWDS = 2.44). These competencies represented the eight highest PD priorities identified by the MWDS analysis.

The lowest PD priorities were conducting an adult program (MWDS = -0.84), planning and conducting student field trips (MWDS = -0.67), using multimedia equipment in teaching (MWDS = -0.12), and using CTSOs as part of teaching and learning (MWDS = -0.11). For these competencies, mean perceived competence was equal to or exceeded mean perceived importance, resulting in relatively low or negative MWDS values. Table 2 presents the importance, competence, and MWDS values for all 22 competencies.

Table 2

Mean Importance, Competence, and Mean Weighted Discrepancy Scores for Teaching, Learning, and Technical Family and Consumer Sciences Competencies (N = 32)

Statement Items	Rank	Importance	Competence	MWDS
Teaching students to think critically and creatively.	1	4.63	3.66	4.49
Integrating current advances in technology into the curriculum.	2	4.13	3.38	3.10
Teaching students problem-solving and decision-making skills.	2	4.72	4.06	3.10
Planning cognitively engaging activities and assignments.	4	4.53	3.88	2.97
Managing student behavior problems.	5	4.59	4.00	2.73
Teaching learning disabled students.	6	4.22	3.59	2.64
Motivating students to learn.	6	4.44	3.84	2.64
Teaching skills and concepts in your area of CTE.	8	4.88	4.38	2.44
Assessing and evaluating student performance.	9	4.44	4.00	1.94
Developing performance-based assessment instruments.	10	4.22	3.78	1.85
Using AI in your profession.	11	3.41	2.94	1.60
Teaching gifted and talented students.	12	4.00	3.66	1.38
Communicating with parents, such as parent/teacher conferences, emails, other communications using new and emerging platforms.	13	4.09	3.88	0.89
Integrating AI in the classroom.	14	3.34	3.09	0.84
Teaching using instructional materials and resources.	15	4.25	4.06	0.80
Teaching using experiments.	16	3.91	3.72	0.73
Organizing and supervising teaching laboratories.	17	4.31	4.16	0.67
Using computers in classroom teaching.	18	4.03	4.03	0.00
Teaching using CTSOs as part of learning.	19	3.44	3.47	-0.11
Using multimedia equipment in teaching.	20	3.75	3.78	-0.12
Planning and conducting student field trips.	21	3.59	3.78	-0.67
Conducting an adult program.	22	2.70	3.03	-0.84

Discussion and Conclusion

The purpose of this study was to identify the perceived PD needs of secondary FCS teachers related to teaching and learning competencies. Consistent with previous research, the findings

reaffirm the critical role of teacher effectiveness in advancing CTE program quality and improving student outcomes (Conrad & Watkins, 2021; Wong & Wong, 2021). Overall, participants identified their highest PD priorities in competencies associated with higher-order thinking, technology integration, student engagement, instructional planning, and classroom management. The pattern of findings extends previous CTE PD research and can be interpreted through Shulman's (2005) signature pedagogies framework, while the Borich (1980) Needs Assessment Model provides a systematic means of identifying participants' relative PD priorities.

Consistent with prior research using the Borich Needs Assessment Model, the highest-ranked PD needs centered on teaching students to think critically and creatively and developing students' problem-solving and decision-making skills. Cannon et al. (2012) similarly identified these competencies as leading PD priorities among secondary CTE teachers. The consistency of these findings suggests that preparing students to think critically and solve authentic problems continues to represent a significant instructional challenge across CTE. Because these competencies are foundational to preparing students for increasingly complex workplace and postsecondary environments, PD should emphasize instructional strategies that intentionally cultivate higher-order thinking within authentic FCS learning experiences.

Beyond higher-order thinking, participants identified planning cognitively engaging activities, motivating students, and managing student behavior as additional high-priority PD needs. These findings support the characterization by Darling-Hammond et al. (2017) of teaching as a complex, interactive process requiring continual refinement of instructional practice while reinforcing Arnett-Hartwick's (2020) description of the diverse instructional demands placed on FCS teachers. Overall, these findings suggest that teachers are seeking PD that extends beyond technical content knowledge to strengthen instructional effectiveness, student engagement, and classroom management.

A noteworthy pattern in the findings is the relative prominence of pedagogical competencies among participants' highest PD priorities. Although respondents rated teaching skills and concepts within their CTE content area as the most important competency and reported relatively high levels of competence in that area, the highest *Mean Weighted Discrepancy Scores* were associated with pedagogical competencies such as critical thinking, problem solving, cognitively engaging instruction, and classroom management. This pattern suggested that several of the participants' greatest perceived PD needs were concerned with how disciplinary content is taught rather than technical knowledge alone. However, teaching skills and concepts within the teacher's CTE area remained among the eight highest-ranked priorities (MWDS = 2.44), indicating that technical and pedagogical development should not be viewed as mutually exclusive needs. Professional development may therefore be most responsive when it strengthens pedagogical practice while continuing to support discipline-specific technical teaching. The findings also provide strong support for the study's conceptual framework. Through the lens of Shulman's (2005) signature pedagogies, the highest-ranked PD needs primarily reflect the deep structure of teaching, meaning the instructional practices that shape how students learn within a discipline. Developing students' critical thinking, problem-solving abilities, and engagement represents the instructional core of effective FCS education. Consequently, PD should move beyond generalized instructional strategies to reflect the applied, interdisciplinary, and career-

connected nature of FCS teaching. Similarly, the Borich Needs Assessment Model proved effective in systematically identifying those instructional competencies that teachers considered highly important while feeling comparatively less prepared to implement. Consistent with previous CTE needs assessment studies (Cannon et al., 2012; Kitchel et al., 2009), the model provides an evidence-based approach for prioritizing PD initiatives that reflect teachers' perceived needs.

The demographic characteristics of participants also provide important context for interpreting the findings. Most participants were early-career teachers (71.8%), and 59.3% taught in rural communities. Although the present study did not examine differences in PD priorities by career stage or community type, these characteristics identify potentially important directions for future research. Studies with larger samples could examine whether perceived PD priorities differ according to teaching experience, community context, certification pathway, or other teacher characteristics.

Conversely, competencies such as integrating Career and Technical Student Organizations into instruction, planning field trips, and conducting adult education programs were identified as relatively lower PD priorities. Although these findings differ somewhat from previous research emphasizing work-based learning and career connections (Ropski et al., 2024), they illustrate the importance of conducting periodic, state-specific needs assessments because PD priorities may evolve over time and differ across educational contexts (Ropski, 2020; Washburn et al., 2001). Collectively, the findings further reinforce concerns expressed by Erwin (2018) and Kitchel et al. (2009) regarding the potential misalignment between available PD opportunities and teachers' instructional needs. Generic PD is unlikely to adequately address the specialized instructional responsibilities of FCS educators.

Several limitations should be considered when interpreting the findings of this study. First, the study was limited to secondary FCS teachers in Idaho; therefore, the findings may not be generalizable to teachers in other states or educational contexts. Second, the study relied on participants' self-reported perceptions of importance and competence, which may differ from observed instructional practices. Although the analysis found no evidence of nonresponse bias, the relatively small number of usable responses may limit the broader applicability of the findings. Finally, because the study employed a cross-sectional survey design, the results represent teachers' perceptions at a single point in time and do not capture how PD needs may change as educators gain experience or as educational priorities evolve.

In conclusion, this study contributes to the growing body of literature highlighting the importance of discipline-specific PD for CTE educators. The findings provide a systematic understanding of the instructional competencies that FCS teachers perceived as most important for their continued professional growth, offering valuable guidance for the design and implementation of targeted PD initiatives. The findings suggest that effective PD should prioritize higher-order thinking, student engagement, instructional planning, classroom management, and inclusive teaching while building on teachers' existing technical content expertise. Consistent with recommendations by Washburn et al. (2001) and Ropski (2020), periodic statewide needs assessments remain essential to ensuring that PD remains responsive to

the evolving instructional demands of FCS education. Ultimately, these findings provide an empirical foundation for designing targeted PD that better aligns with the instructional realities of FCS educators and supports continuous improvement in CTE programs.

Recommendations

As noted at the outset, the effectiveness of CTE programs is grounded in the strength of their administrators and teachers (Conrad & Watkins, 2021). Because administrators and PD providers are typically responsible for planning and implementing in-service learning opportunities, these findings identify specific areas where PD can better support the instructional practice of FCS teachers. Based on the findings of this study, the following evidence-based recommendations are offered.

First, PD for FCS teachers should prioritize instructional strategies that promote higher-order thinking, critical thinking, and problem solving. These competencies represented the highest PD priorities identified by participants and are essential for preparing students to apply knowledge in authentic career and life contexts. Professional learning should emphasize practical classroom strategies that enable teachers to intentionally integrate these skills into FCS instruction.

Second, PD should place greater emphasis on student engagement, cognitively engaging instructional practices, and classroom management. Respondents identified these competencies as important but reported lower levels of perceived competence. Workshops, coaching, and collaborative learning opportunities that provide evidence-based instructional strategies may help teachers create engaging, well-managed learning environments that support student success.

Third, PD should be differentiated to address the needs of teachers at various career stages. Because many respondents were early-career educators, induction programs, mentoring opportunities, and instructional coaching should emphasize classroom management, instructional planning, and student motivation while continuing to support experienced teachers through advanced professional learning opportunities.

Fourth, state agencies, teacher educators, and professional organizations should collaborate to design discipline-specific PD for FCS educators. Although many PD opportunities address general instructional practices, FCS teachers would benefit from learning experiences that reflect the applied, interdisciplinary, and laboratory-based nature of FCS instruction.

Fifth, PD should be accessible to educators regardless of geographic location. Given the large proportion of respondents teaching in rural communities, online, hybrid, and regional delivery models should continue to be expanded to ensure equitable access to high-quality professional learning opportunities.

Finally, state leaders should conduct periodic needs assessments to ensure that PD priorities remain aligned with the evolving needs of FCS educators. Regular assessment using models such as the Borich Needs Assessment Model can help decision makers allocate PD resources based on

empirical evidence rather than assumptions, thereby increasing the relevance and effectiveness of future professional learning initiatives.

Future Research

Several opportunities for future research emerged from this study. First, replication of this study in other states and regions is recommended to determine whether the PD priorities identified among Idaho secondary Family and Consumer Sciences (FCS) teachers are consistent across diverse educational contexts. Comparative studies may identify regional differences while informing broader national PD initiatives for FCS educators.

Second, future research should examine the effectiveness of PD designed to address the instructional priorities identified in this study. Investigating changes in teacher competence, instructional practice, and student outcomes following targeted PD would provide valuable evidence regarding the impact of these initiatives.

Third, researchers should examine how PD needs vary across teachers' careers. Because many respondents were early-career teachers, longitudinal studies could explore how instructional priorities evolve as educators gain classroom experience and assume additional professional responsibilities.

Fourth, qualitative and mixed-methods studies are recommended to better understand the contextual factors influencing teachers' PD needs. Interviews, focus groups, and classroom observations could provide richer insight into the challenges teachers experience when implementing instructional strategies that promote higher-order thinking, student engagement, and inclusive learning environments.

Finally, future research should investigate factors that influence teachers' participation in PD, including motivation, accessibility, perceived relevance, and barriers to engagement. A better understanding of these factors may assist state leaders and PD providers in designing learning opportunities that are both meaningful and widely utilized by FCS educators.

References

- Arnett, S. (2026). An analysis of professional development preferences, needs, and engagement among Family and Consumer Sciences teachers in Illinois. *Journal of Research in Technical Careers*, 10(1), 25-36. <https://doi.org/10.9741/2578-2118.1184>
- Arnett-Hartwick, S. (2020). Challenges at different career stages among secondary Family and Consumer Sciences teachers. *Journal of Family and Consumer Sciences Education*, 37(1), 2–13. <https://natefacs-ojs-ttu.tdl.org/natefacs/article/view/19>
- Borich, G. D. (1980). A needs assessment model for conducting follow-up studies. *Journal of Teacher Education*, 31(3), 39–42. <https://doi.org/10.1177/002248718003100310>

- 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), 42-69. <https://scholar.lib.vt.edu/ejournals/JITE/v47n1/cannon.html>
- 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., & Tenuto, P. L. (2013). District superintendent perceptions of Idaho secondary CTE teachers' professional development needs. *Journal of Career and Technical Education*, 28(1), 40-56. DOI: 10.21061/jcte.v28i1.572
- Conrad, M., & Watkins, L. (2021). *Landscape of CTE leaders: Career and Technical Education leadership series* (ED616683). ERIC. <https://files.eric.ed.gov/fulltext/ED616683.pdf>
- Creswell, J. W., & Guetterman, T. C. (2025). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (7th ed.). Pearson.
- Darling-Hammond, L., Hyler, M. E., & Gardner, M. (2017). *Effective teacher professional development*. Learning Policy Institute. <https://eric.ed.gov/?id=ED606743>
- Desimone, L. M. (2009). Improving impact studies of teachers' professional development: Toward better conceptualizations and measures. *Educational Researcher*, 38(3), 181–199. <https://doi.org/10.3102/0013189X08331140>
- Dillman, D. A., Smyth, J. D., & Christian, L. M. (2014). *Internet, phone, mail, and mixed-mode surveys: The tailored design method* (4th ed.). Wiley.
- Duncan, D. W., & Ricketts, J. C. (2008). Total program efficacy: A comparison of traditionally and alternatively certified Agriculture teachers. *Journal of Agricultural Education*, 49(4), 38-46. <https://doi.org/10.5032/jae.2008.04038>
- Edwards, M. C., & Briers, G. E. (1999). Assessing the in-service needs of entry-phrase agriculture teachers in Texas: A discrepancy model versus direct assessment. *Journal of Agricultural Education*, 40(3), 40-49. <https://doi.org/10.5032/jae.1999.03040>
- Erwin, C. J. (2018). *Prioritizing professional development needs of Nebraska secondary Family and Consumer Sciences teachers* (Publication No. 2037253360) [Doctoral dissertation, University of South Dakota]. ProQuest Dissertations and Theses Global. <https://www.proquest.com/openview/be4fdf2d3c1841843693c95684b9095a/1?pq-origsite=gscholar&cbl=18750>

- 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://doi.org/10.5032/jae.1996.03052>
- Guskey, T. R. (2000). *Evaluating professional development*. Corwin Press.
- Guskey, T. R. (2002). Professional development and teacher change. *Teachers and Teaching: Theory and Practice*, 8(3), 381–391. <https://doi.org/10.1080/135406002100000512>
- Jeffery, J., Force, C., & Cannon, J. (2023). Describing the professional development needs of preservice Business Education teachers. *Journal of Research in Business Education*, 63(1), 49-60. <https://jrbe.nbea.org/index.php/jrbe/article/view/95>
- Kitchel, A., Arnett, S., Cannon, J., & Duncan, D. (2010). Program management needs of Family and Consumer Sciences teachers in Idaho. *Journal of Family and Consumer Sciences Education*, 28(2), 48-59. <https://natefacs-ojs-ttu.tdl.org/natefacs/article/view/91>
- Kitchel, A., Cannon, J. G., & Duncan, D. W. (2009). Program management educational needs of Idaho Business and Marketing Teachers. *Career and Technical Education Research*, 34(3), 175–189. <https://doi.org/10.5328/CTER34.3.175>
- Lange, S. W. (2020). *Examining Career and Technical Education practitioner preparation and professional development needs* (Publication No. 27744878) [Doctoral dissertation, Illinois State University]. ProQuest Dissertation and Theses Global. <https://www.proquest.com/docview/2437395142?pq-origsite=gscholar&fromopenview=true&sourcetype=Dissertations%20&%20Theses>
- Lawshe, C. H. (1975). A quantitative approach to content validity. *Personnel Psychology*, 28(4), 563-575.
- Lindner, J. R., Murphy, T. H., & Briers, G. E. (2001). Handling nonresponse in social science research. *Journal of Agricultural Education*, 42(4), 43–53. <https://doi.org/10.5032/jae.2001.04043>
- McKim, B. R., & Saucier, P. R. (2011). An Excel-based mean weighted discrepancy score calculator. *Journal of Extension*, 49(2), Article 28. <https://doi.org/10.34068/joe.49.02.31>
- Miller, L. E., & Smith, K. L. (1983). Handling nonresponse issues. *Journal of Extension*, 21(5), 45–50.
- Radhakrishna, R., & Doamekpor, P. (2008). *Strategies for generalizing findings in survey research*. *Journal of Extension*, 46(2), Article 22.
- Ropski, B. (2020). *Professional development opportunities and needs of secondary family and*

consumer science teachers in the northwest United States (Publication No. 27993919) [Master's thesis, University of Idaho]. ProQuest Dissertations and Theses. <https://www.proquest.com/openview/a41ef958827b611ff1c5e0a79f3413e3/1?pq-origsite=gscholar&cbl=18750&diss=y>

- Ropski, B., Cannon, J., & Meyer, S. (2024). Professional development of secondary family and consumer sciences educators in the northwest United States: Demographics, needs, motivations, and deterrents. *Journal of Family and Consumer Sciences Education*, 41(1), 17-32. <https://natefacs-ojs-ttu.tdl.org/natefacs/article/view/89>
- Shulman, L. S. (2005). Signature pedagogies in the professions. *Daedalus*, 134(3), 52-59. <https://doi.org/10.1162/0011526054622015>
- Smalley, S. W., Hainline, M. S., & Sands, K. (2019). School-based Agricultural Education teachers' perceived professional development needs associated with teaching, classroom management, and technical Agriculture. *Journal of Agricultural Education*, 60(2), 85–98. <https://doi.org/10.5032/jae.2019.02085>
- Walker, A., & Atkins, L. (2021). An investigation of Career and Technical Education signature pedagogies. *The Journal of Research in Business Education*, 61(1), 32-43. <https://jrbe.nbea.org/index.php/jrbe/article/view/13>
- Washburn, S. G., King, B. O., Garton, B. L., & Harbstreit, S. R. (2001, December 12). *A comparison of the professional development needs of Kansas and Missouri teachers of Agriculture* [Paper presentation]. 28th Annual National Agricultural Education Research Conference, New Orleans, LA, United States. https://scholar.google.com/scholar?cluster=13266083168415432466&hl=en&as_sdt=0,13
- Wong, H. K., & Wong, R. T. (2021). *The first days of school: How to be an effective teacher* (5th ed.). Harry K. Wong Publications.

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