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Pennsylvania Educational Leadership

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Pennsylvania Association for Supervision and Curriculum Development

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Educators impacting teaching and learning through leadership.

Pennsylvania Educational Leadership

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Foreword

The articles in this issue of *Pennsylvania Education Leadership* promote the stated mission of the organization which is **Educators impacting teaching and learning through leadership.** Specifically, this issue addresses educational structures and systems designed to lead to improved student achievement: alignment of curriculum to academic standards, theoretical frameworks for instruction, comprehensive assessment systems, school organization, and support for novice teachers.

In the lead article *Nicole B. Stants* discusses education for sustainable development as a strategy for unifying and integrating science content to meet Pennsylvania's academic standards in Science, Technology, and Engineering as well as Environment and Ecology. She provides examples to illustrate how the standards can be met through this approach.

Kimberly Connelly pulls from research in the fields of early childhood education and elementary education to define a theoretical framework for PreK-3 instruction. Specifically, she examines how findings in the areas of Developmentally Appropriate Practice and Response to Instruction and Intervention can lead to a framework in which all children can learn and be successful.

In the third article, by *Robert Iozzolino,* the focus shifts to the development of comprehensive classroom assessments. The author describes four key elements that should guide the development of a quality assessment system: assessment literacy, test construction, formative assessment, and feedback.

The fourth article examines a school's transition from a self-contained classroom to a departmentalized organization structure at the intermediate level. *Betsy Baker and Nona Prestine* report on their case study and identify the impact of the new structure on administrators, teachers, and students. They also provide recommendations for those considering a transition towards departmentalization.

In the final article, *Leighann Forbes, Jill Merritt, and Robin Quick,* chronicle their university's efforts to support novice educators through a series of online classroom support modules. The authors describe the module development process, module contents, and how teachers access the modules after they have left the university and entered into practice. The authors also share evaluation feedback from the end users.

We hope that you find the articles to be stimulating reading. Feel free to contact the authors about their work and ideas. If you have an idea for an article, please submit it for consideration.

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Education for Sustainable Development: Curriculum Reform That Unifies the Pennsylvania Academic Standards

Nicole B. Stants
Indiana University of Pennsylvania

Several teachers were meeting with their school's curriculum and instruction director to discuss science curriculum revision. When the director referred to meeting all the state's standards, the teachers quickly voiced concern that it would be nearly impossible to cover all of them. The curriculum and instruction director had to agree that just looking over, much less addressing, all of the Pennsylvania Academic Standards is a daunting task. For example, there are 60 science and technology and engineering education standards plus 24 environment and ecology standards for the seventh grade level (PDE, 2010; PDE, 2009). How can all of these be addressed within the constraints of a yearlong course that meets every day for 42 minutes?

These educators are not alone in their uncertainty about how to align their instruction with the Pennsylvania Academic Standards. The task is daunting because few schools have separate environment and ecology courses that students are required to take. The challenge of ensuring that students achieve the total number of standards in one year falls on the shoulders of the biology, earth and space, chemistry, or physics teachers (Stevenson, 2007).

When faced with the requirement of including environment and ecology content in addition to the existing science content, teachers often resort to additive approaches (Lewis, Mansfield, & Baudains, 2008). Teachers continue to teach their science courses as they have done previously, but squeeze in a little environment and ecology content wherever they can. When using this tactic, teachers are finding that they simply do not have enough time to cover all the material and students are unable to make connections among the topics because of the disjointed curriculum (Godemann, 2008; Moore, 2005). The solution centers on the approach used to address both the science and environment and ecology standards. Instead of adding more to an existing curriculum, teachers need to focus on revising their curricula.

Education for sustainable development (a practice used to help students appreciate, understand, and think critically about complex environmental, social, and economic problems) can be used as a unifying concept when revising the curriculum. Instead of the compartmentalized topics that result from an additive approach, education for sustainable development will unite science, environment, and ecology topics allowing the connections between the topics to become evident (Capra, 1999).

This article will examine the little known concept of education for sustainable development. Specific transdisciplinary examples that use education for sustainable development to fuse the Pennsylvania Academic Standards for Science, Technology, and Engineering Education with the Environment and Ecology Academic Standards will be provided. Additionally, an analysis of the advantages of both transdisciplinary curricula and curricula that include education for sustainable development will be provided.

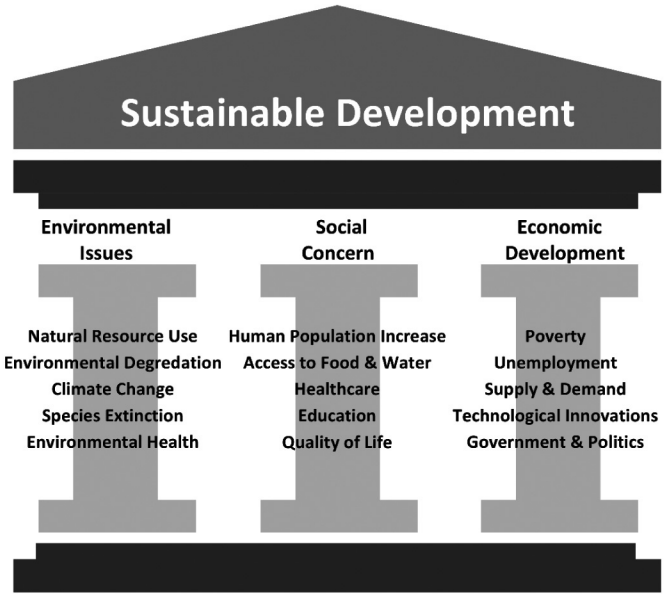
What Is Education for Sustainable Development?

"Sustainable" is a buzzword that is infiltrating American culture. Perusing media sources or taking a shopping trip will provide examples of the word "sustainable" being used as a synonym for long-term, durable, sound, or systematic (Filho, Manolas & Pace, 2009). For example, the evening news shows segments on the impending increases in food prices. These segments include agricultural researchers explaining that they are investigating sustainable practices that will allow farmers to produce reasonably priced food for the world. Similarly, grocery stores are advertising that their meats are produced sustainably. This lets consumers know that their food is being raised in a way that does not harm the environment. Building materials at home improvement stores are labeled as sustainably harvested. Because of this sustainable designation, consumers purchase lumber and flooring knowing that forests will continue to produce lumber for years to come.

While sustainability is indeed becoming part of our culture, the implications for educators are unclear. Few educators are familiar with the education for sustainable development (ESD) movement or similarly named initiatives that have appeared in educational literature for the past three decades (Filho et al., 2009; Lang et al., 2006). The United Nations World Commission on Environment and Development's Brundtland Report provides an often quoted definition for explaining the meaning of education for sustainable development. ESD is "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987, p. 43). This definition outlines the need to balance economic and social progress while maintaining concern for the environment and stewardship of natural resources (Pigozzi, 2003).

The three pillars: environmental issues, social concern, and economic development provide support for the overall concept of education for sustainable development (Los, 2008). Figure 1 provides examples of the concepts included in each of these three pillars.

Figure 1: The 3 Pillars of Sustainable Development.
This figure illustrates topics encompassed by the three pillars of sustainable development (Los, 2008; Marcinkowski, 2010).



One aspect of the environmental issues pillar is the systematic use of natural resources. This ensures that natural resources will be available for future generations (Filho et al., 2009). Another aspect of the environmental issues pillar is the reduction of environmental degradation. Because humans are currently producing air, water, and land pollution at rates that are unmanageable, sustainable development attempts to get such damaging actions under control (Santone, 2004).

The social concern pillar of sustainable development ensures that nations develop in a manner that is socially just, ethically acceptable, and morally fair (Filho et al., 2009). Healthcare is a social concern worldwide. The global human population is increasing at a rate of 210,000 people per day and there simply are not enough doctors and hospitals to help those in need. Individuals are forced to let their health conditions go untreated or travel excessive distances just to been seen by a doctor. For example, a young African woman experiencing pregnancy complications traveled several hours on the back of a moped to reach a hospital.

The third pillar of sustainable development is achieved when nations act in an economically sound fashion (Polk & Knutsson, 2008). Alleviating poverty and decreasing unemployment or underemployment go hand in hand with sustainable development. The official poverty rate in the United States is 14.3% (U. S. Census Bureau, 2010). This is not because people are choosing to not work but because jobs are unavailable or do not offer enough compensation to overcome poverty. Careful monitoring of commodities is also an aspect of economic development. If the world's demand for grain exceeds the available supply, then prices increase dramatically. The prices of products that contain grain skyrocket and citizens are faced with an increase in grocery costs.

Sustainable development provides a unifying theme for the educational process. By being aware of ESD, educators can tailor the curricula around the three pillars of sustainable development. This ensures that students enter the adult world with the skills and knowledge they need to balance economic goals, social goals, and ecological responsibility.

What Are Cross-Disciplinary Approaches?

A discipline is a particular area of study that has developed a specialized set of tools, techniques, methods, and jargon. This specialization leads to self-contained, hard-shelled disciplines (Ertas, 2000). Because ESD operates under the premises of resolving real-world problems, thinking systematically in terms of connections, and considering an issue from multiple perspectives, the lens of a single discipline is not sufficient. Instead, a cross-disciplinary approach is needed so that students will be able to solve problems and integrate knowledge that transcends disciplinary boundaries (Ertas, 2000; Godemann, 2008).

Because of the terminology involved, understanding the cross-disciplinary approaches to education can be confusing. "Multidisciplinary," "interdisciplinary," and "transdisciplinary" are often used interchangeably (Wall & Shankar, 2008). However, each of these terms represents a unique approach to education. Figure 2 provides a comparison of the key points of these cross-disciplinary approaches.

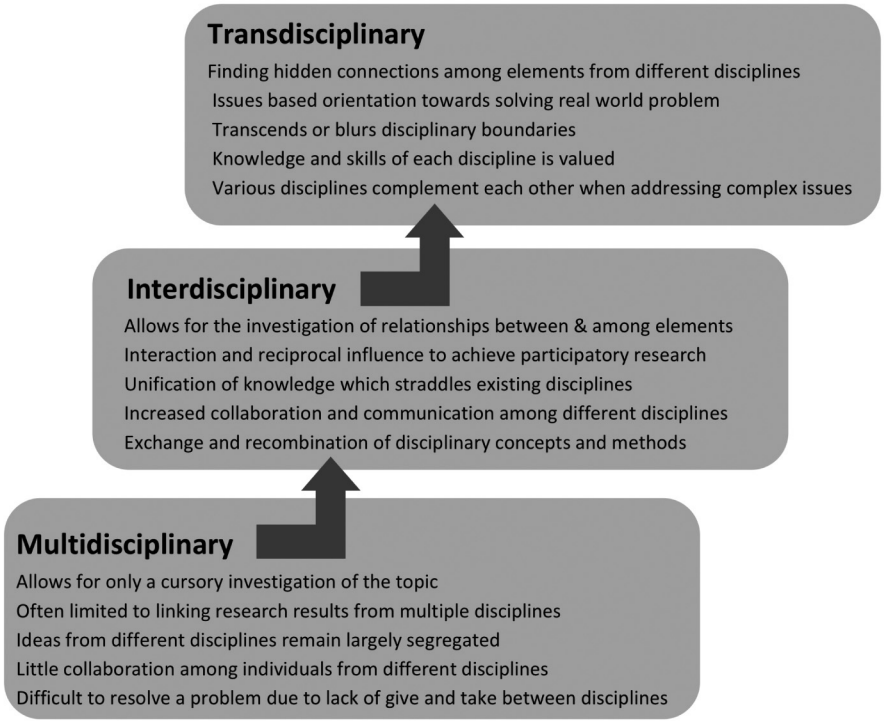
A multidisciplinary approach is the least sophisticated form of cross-disciplinary work. Although the term multidisciplinary implies that the perspectives of many disciplines will be used when learning about a topic, this approach leads to the topic being investigated in a superficial manner (Lee, 2007). The ideas from different disciplines remain largely segregated. There

is very little give and take among the disciplines and students are unable to reach a cohesive understanding about the topic (Pirrie, Hamilton & Wilson, 1999).

An interdisciplinary approach allows for the in-depth review of topics. The increased level of collaboration and communication among disciplines allows for the investigation of relationships between and among topics (Godemann, 2008). The information does not remain divided along discipline lines. Instead, there is an exchange of information, concepts, and methods (Madni, 2007).

A transdisciplinary approach is the most evolved form of cross-disciplinary work. By investigating real world problems, a transdisciplinary approach allows for the discovery of hidden connections among elements from different disciplines (Madni, 2007). Various disciplines work to complement each other through a transdisciplinary approach. Additionally, a positive atmosphere is fostered when the knowledge and skills of each discipline is valued.

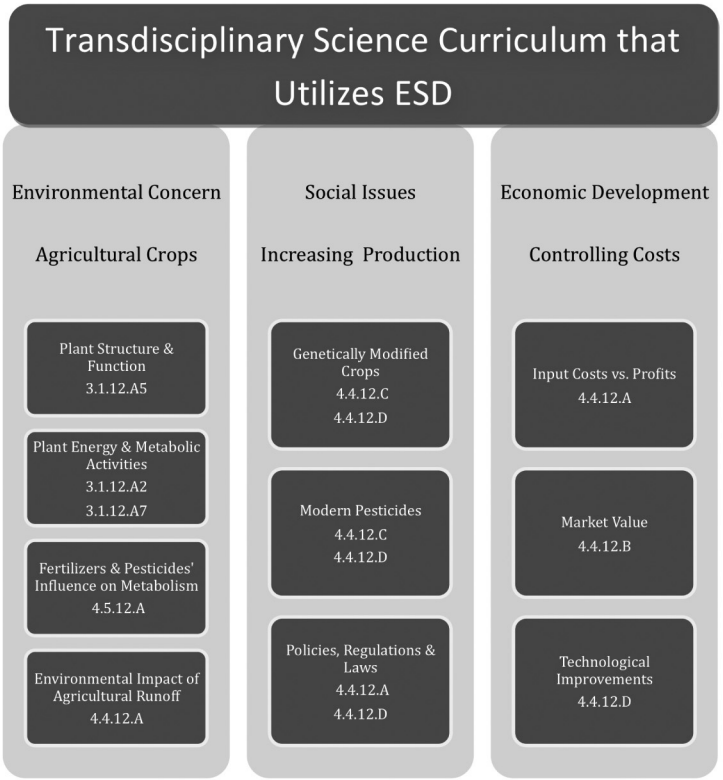
Figure 2: Comparison of Cross-disciplinary Approaches.
This figure identifies the differences between multidisciplinary, interdisciplinary, and transdisciplinary approaches (Godemann, 2008; Lee, 2007; Madni, 2007; Paige, 2008; Polk & Knutsson, 2008; Wall & Shankar, 2008).



How Can ESD and Transdisciplinary Approaches Unify Curricula?

Pennsylvania has two sets of science standards: the Academic Standards for Science and Technology and Engineering Education and the Academic Standards for Environment and Ecology. Content from both sets of standards is usually covered in physical science, earth and space science, biology, chemistry, or physics courses. There are numerous opportunities for teachers to cover both sets of standards when sustainable development is used as a unifying theme in conjunction with a transdisciplinary approach. The example detailed below is designed for an upper high school biology course. See Figure 3 for a graphical representation of this curriculum including number designations for the Pennsylvania Academic Standards.

Figure 3: High School Biology Curriculum.
This figure illustrates the Pennsylvania Academic Standards that can be addressed through education for sustainable development and a transdisciplinary approach.



In this curriculum, the topic of food is used to unite the sciences because it corresponds to the three pillars of sustainable development. The environmental issues pillar is addressed by presenting information on plants that are grown for agricultural crops. First, students relate the structures of the plant (roots, stem shape, leaf arrangement, and reproductive systems) with their function. Students then take part in an in-depth investigation of how agricultural plants get energy from the environment. A discussion would ensue about how fertilizers and pesticides alter these metabolic activities. This leads into the evaluation of agricultural runoff as an environmental factor.

Sustainable development's social concern pillar can be addressed in this curriculum by directing attention to the continual demand of increasing food production while keeping costs

in check. With this social issue, students can analyze research initiatives such as genetically modified crops and modern pesticides. Making connections to the policies, regulations, and laws that affect these agricultural technologies would also address social concern.

In addition to information from the sciences, incorporating other disciplines will provide insight into the sustainable aspects of economic development. By addressing the costs of food production, a link can be made between economics and the agricultural system. The laws and policies that impact agricultural technology use are also connected to economic development because they ultimately influence the cost of the food. The inclusion of these topics provides a transdisciplinary element to the curriculum.

Why Should ESD and Transdisciplinary Approaches be Used?

ESD is a means by which the science curricula or all curricula for that matter can be transformed. As Stephen Sterling (2004) asserts, "Sustainability is not just another issue to be added to an overcrowded curriculum, but a gateway to a different view of curriculum, of pedagogy, of organizational change, of policy and particularly of ethos" (p 50). A transdisciplinary approach that uses sustainability as a unifying theme can change narrowly defined disciplines to disciplines that merge together due to imperceptible connections that exist.

Using sustainable development to unify science topics and present information in a transdisciplinary manner provides a huge potential to improve student motivation. Students become excited about topics that are presented with new and interesting methods (Lee, 2007). Issues tied to sustainable development are placed in a real world context and the curriculum provides an enriching, intellectually stimulating experience. Using several disciplines to evaluate a real world problem allows students to view it in its entirety and prevents an isolation of facts.

A lesson from a high school chemistry class will illustrate the increase in student motivation that occurs with a transdisciplinary curriculum. In the class, students are buzzing with excitement as they divide into groups to determine why citizens in a small town have become extremely ill. Because no one in the town is able to identify the source of the illness, the students in the chemistry class have been given this challenge. A newly opened factory in the town prompts the students to carry out experiments on the drinking water. The real world connection to this ambiguous problem excites the students and they put forth a tremendous effort to find a solution. This is very different from the motivation of a class where students go through the prescribed steps of a lab to determine what chemicals a water sample contains. At the conclusion of such a lab, the students are not excited as they report their findings of a polluted water sample.

A transdisciplinary approach is beneficial due to the manner in which it allows students to focus on relationships and the connections that exist among disciplines (Holmes, 2006). Students' understanding of science should not be limited to learning facts about objects or events. Instead, the focus should be on relationships. Lang et al. (2006) supports, "Students need to see how they, and the science they study are a part of a larger picture involving environmental health" (p. 178).

This need to understand relationships is exemplified by a biology class lesson about industrial pollution. The students discuss that unwanted chemicals are often released into the air and water around a factory. The students learn about the guidelines and monitoring that ensure factories remain within the safe limits for chemical emissions. The teacher questions what should

be done when factories are not in compliance with the guidelines. If the students limit their thinking to one discipline, they demand that the factory be shut down immediately. If students are using a transdisciplinary approach, they are hesitant to insist that the factory be shut down. The students are able to identify the connections between the factory and the economics of the region; a shut down means unemployment for the factory workers and a decrease in their quality of life.

The greatest advantage of a transdisciplinary approach is the ability to solve complex problems (Godemann, 2008). Sustainable development problems involving environmental, social, or economic concerns will not disappear. Although the problems will evolve with the changing times, there will always be issues that are present and require addressing. Due to this, it is important that students experience a transdisciplinary approach to education and have an opportunity to cultivate their problem solving skills. As Ertas (2000) states, "The most important aspect of education is not the imparting of specific technical knowledge, but rather the learning of how to find knowledge when it is needed, how to assimilate that knowledge, how to integrate that knowledge, and how to synthesize new ideas and solve problems" (p. 14).

Conclusion

Education for sustainable development plays a pivotal role in revising science curricula to meet both the Pennsylvania Academic Standards for Science, Technology, and Engineering Education and the Academic Standards for Environment and Ecology. By serving as a unifying theme, education for sustainable development moves science education away from presenting topics in a narrowly defined, compartmentalized fashion and provides a means to solidify the connections that exist among the topics. However, education for sustainable development is not limited to being a unifying concept for science courses. Instead, it can become an integrative concept that provides relevance and purpose for education that occurs in all subject areas (Santone, 2003).

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Can the Pre-K to Third Grade Alignment Be a Reality in Public Education? - Using Response to Instruction and Intervention and Developmentally Appropriate Practice to Illustrate Compatibility

Kimberly Connelly
Juniata Valley School District

In order to address this question, it is important to first place it within and to discuss the theoretical framework from where it originated. Over the past decade, much attention has been given to a movement that calls for a cohesive system of education in early childhood. This movement, or the PreK—3rd grade (PK-3) initiative, challenges educators to align education for children ages 3 through 8.[1]

However promising this initiative may be, it may prove to be difficult to achieve theoretically. This alignment calls for the involvement of two distinct fields in the overarching field of education—that of early childhood education and elementary education. Both "camps" hold unique identities and cultures. The purpose of this paper is to offer an investigation into reconciling these two fields so that a PK-3 alignment can become a reality in public education. More specifically, the discussion focuses on how one current practice in the field of elementary education can conceptually be inserted into the PK-3 philosophy, thereby entering into the conversation of how the PK-3 framework can become a viable option in public education.

PreK-3rd Grade Movement

Since the reauthorization of the Elementary and Secondary Education Act (NCLB) in 2001, schools have been challenged as never before to raise the bar on achievement. Educators of elementary-aged children have long known of the advantages of preschool experiences in preparing children for formal schooling. It has long been accepted the key to higher achievement in elementary school is to have school-aged children "ready" to learn when they enter school. Research conducted in the past decade on the effects of preschool programs, however, is showing that the issue is much more complicated than once thought. High-quality preschool experiences alone are not the answer.

The PreK-3 movement offers an avenue for educators interested in closing the achievement gap. According to Guernsey and Mead (2010), PreK-3rd programs have seven key features. These key features start with universal access to preschool programs for all 3- and 4-year-old children, which are then followed by universal full-day kindergarten. Qualified teachers

[1]Pennsylvania has accepted this challenge and has adopted a new teacher certification to address the current national trend toward holistic early childhood education. In Pennsylvania, prospective teachers will now become certified to teacher preschool through fourth grade, PK-4.

are those who hold a bachelor's degree and have specialized training in how young children learn. Teachers should have time to share and plan together and have access to professional development within and across grade levels. Leadership must be devoted to providing children with a seamless educational experience by supporting an educational system with curriculum and pedagogy that is aligned vertically, horizontally, and temporally. Another critical feature is the opportunity for parent and community engagement. Lastly, a key feature is to have quality, developmentally appropriate curriculum and standards aligned from PreK through 3rd grade.

The Merging of Two Fields

The PK-3 movement is unique in many respects, but perhaps its most unique quality is "dual citizenship" (Goldstein, 1997). PK-3 resides in two distinct professional fields—early childhood education and elementary education. This dual citizenship creates competing interests and, sometimes, incompatible tenets. Both fields have unique identities and cultural origins, which spring from their historical roots (Armstrong, 2006; Goldstein, 1997).

A great deal has been written about the dichotomy that exists between early childhood education and traditional elementary education. Thomas Armstrong (2006) refers to early education educators as engaging in "Human Development Discourse" and elementary educators as engaging in "Academic Achievement Discourse." In Human Development Discourse, the emphasis is placed on the fact that learning is a human endeavor and therefore subject to all the variability inherent in being a developing human being. In fact, becoming a happy, *whole* human being is the bottom line in Human Development Discourse. On the other hand, in Academic Achievement Discourse, the focus is placed outside the individual and projected onto the acquisition of content and skills. The primary goals in this discourse are grades and test scores.

Because the field of early education lies in two distinct disciplines with two distinct theoretical frameworks, merging the two is a daunting task and certain to cause unrest in both camps. Merging, however, does not mean that either entity would disappear. The vision of a PK-3 alignment is to create something new and distinct. Both fields would retain their unique identities and their voices would both be present in the new conceptualization, but the result would be a distinct enterprise with its own voice, which has come about from collaboration between early childhood education and elementary education. The PK-3 alignment calls for a new understanding of how the two fields can be brought together as one.

This focus, therefore, for the PK-3 conversation is to accept that there are challenges inherent in the merging of the fields, but rather than to extend the discourse associated with what exists, turn the focus to creating a solution and finding ways we can merge the two fields while retaining both unique identities in order to work toward making the PK-3 philosophy a reality in public schools. The next section attempts to demonstrate this merger by providing an illustration using Response to Intervention and Developmentally Appropriate Practices—each representing a dominant practice in the respective fields of elementary education and early childhood education. Throughout the article, Response to Intervention refers to the movement as a whole on a more global level. Because each state's interpretation of the Response to Intervention conceptualization differs, for the purposes of the example illustration, the term and philosophical specifics used are those defined in Pennsylvania. In Pennsylvania, the model has been termed Response to Instruction and Intervention or RtII. The implementation of a "Response to Instruction and Intervention" (RtII) framework is pervasive in today's elementary schools. Engaging in developmentally appropriate practices (DAP) in early childhood (including

the primary grades) has long been held by some early childhood educators as a practice necessary for optimal childhood learning and is one of the main components in the PK-3 ideology. The illustration will attempt to answer several questions. Can the RtII framework be considered DAP? What elements of RtII can be considered developmentally appropriate, and which are inconsistent with those practices? How can educators responsible for implementing RtII ensure that it is implemented in a developmentally appropriate manner? In this illustration, when considering the developmental appropriateness of RtII, it is important to remember that RtII is only one component of a school day and does not represent the entire scope of activities of children in elementary schools. This analysis is an examination of whether RtII could potentially be considered a component with an overall developmentally appropriate program.

Example Illustration - Comparing Two Initiatives (Mapping RtII onto DAP)

Response to Intervention (RtII) - Background

Response to Intervention began within the field of special education as early as the 1970s when educators attempted to create a system of environments where students with disabilities could be successful (Buffman, Mattos, & Weber, 2009). The inclusion movement has increasingly attempted to bridge the gap between general and special education and iterations of federal special education law have focused on ensuring quality instruction in the general education environment for students with disabilities. Volumes of research have been completed in this area, which eventually led to the incorporation of the RtI model in the Individuals with Disabilities Education Improvement Act (IDEIA) of 2004, which allows schools to use the RtI model to identify learning disabilities. With this enactment of the law, the impact of RtI goes far beyond the realm of special education. RtI is truly a general education initiative as we will see below.

Response to Intervention (RtII) - What is it?

RtII begins with the belief that *all* students can learn when given appropriate instruction tailored to their unique needs. The RtII framework is a service delivery model/system and can be used for any subject area, but most commonly it is used for reading, math, and/or socio-emotional skills. In this system, students receive increasingly intensive and targeted supports depending on their area of identified need. Supports and needs are identified and delivered through a hierarchical framework or pyramid (Buffman et al., 2009; Pennsylvania Department of Education [PDE], 2008).

In Pennsylvania, the framework is entitled Response to Instruction and Intervention (RtII) to ensure the focus is kept on *instruction*. The RtII framework consists of three tiers. Tier I is instruction for ALL students and is referred to as the Universal level. The main element of Tier I is that all students have access to an aligned curriculum via instructional strategies designed to reach them through the use of scaffolding and differentiated techniques. It is estimated that core instruction should enable approximately 80% of students to be successful without any additional supports. For some students, additional supports are sometimes necessary. Tier II is considered the strategic level where some students need to have supplemental academic and/or behavioral supports in order to successfully engage in learning. Key elements of Tier II are the use of targeted interventions in specific areas of need in small groups and the monitoring of progress twice a month. It is estimated that approximately 15% of students require strategic interventions in order to be successful. There are a few students who may need to have intensive supports in

order to make progress—these students are considered Tier III students who receive specific skill development via small, intensive, flexible groups. Student progress is monitored weekly, and instructional decisions are based on this monitoring.

Besides having a tiered model of interventions and supports, core characteristics of RtII are essential in assuring that all students are successful. These are: standards aligned instruction, universal screening, data-based decision making, shared ownership, and parental engagement. [2]

Developmentally Appropriate Practice - Background

The term Developmentally Appropriate Practice (DAP) first came to the everyday conversation of early educators in 1986 with the first publication of a position statement on the topic by the National Association for the Education of Young Children (NAEYC) (Copple and Bredekamp, 2009). The latest edition of *Developmentally Appropriate Practice in Early Childhood: Serving Children from Birth through Age 8* was published in 2009 and is considered the authoritative source on the topic. The key features of NAEYC's position on developmentally appropriate practice are: meeting children where they are to enable them to reach goals, teaching practices that are tailored to children's age and developmental stage and are culturally responsive, implementing goals and experiences are achievable yet challenging, and using best practices based on knowledge and not assumptions.

Developmentally Appropriate Practice - What is it?

There are five areas of guiding principles that address how decisions are made in developmentally appropriate classrooms—creating a caring community of learners, teaching to enhance development and learning, planning curriculum to achieve certain goals, assessing children's development and learning, and establishing reciprocal relationships with families. These principles cover the range of ages from birth through the age of eight years with specificity arising from the unique characteristics in each age range and within each child. Again, the scope of this article prohibits a complete discussion on the principles of DAP. [3]

RtII and DAP—in what ways are they consistent?

In the most basic sense, RtII and DAP have at its core the belief that all children can learn and be successful. Another basic shared belief is that children need different instructional approaches and supports in order to reach their potential. To examine the similarities more closely, each core characteristic of RtII will be examined with DAP beliefs.

Core characteristic #1: Tiered Interventions

Having a system of tiered interventions is one of the defining characteristics of RtII where children receive increasingly intensive support in order to reach goals. Tiered interventions are consistent with the DAP notion of teachers using a variety of instructional

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[2] A complete discussion of the components of the RtII model is beyond the scope of this article. For detailed information on this topic, the reader is directed to access the Pennsylvania Department of Education's website at http://www.education.state.pa.us.

[3] For complete information, please see Copple and Bredekamp (2009).

strategies and groupings in the classroom and that groupings are flexible based on a child's present need. Agreement between RtII and DAP also exists in that tiered interventions ensure that a child is working with an appropriate level of challenge in order to maximize development. During an intervention group, a student may be working on activities directly targeting a need area such as phoneme segmentation or one-to-one correspondence in an explicit and direct manner. Once the skill is mastered, the student moves into another instructional group; or if the skill is not mastered, then different instructional strategies are attempted in order to foster acquisition of the skill. Also consistent with DAP is the notion that interventions are highly individualized and only utilized if a student has shown a need. During intervention, if a student does not require the intervention, he is either working in another skill area that requires intervention or participating in enrichment activities to deepen and extend the curriculum.

Core Characteristic #2: Standards-aligned Instruction

The notion of having a standards-aligned curriculum as the basis for RtII directly aligns with DAP's belief of having a planned curriculum to achieve the school's goals. Both of these tenets consider it critical to have a written scope and sequence of skills that are aligned vertically in order to provide for a cohesive program for children moving through grade/age levels. Both developmentally appropriate practice and the standards-aligned system speak of the "big ideas" in curriculum. Under both constructs, the desire for challenging, flexible, and responsive curriculum is present and assessment is used to inform teaching practices.

Core Characteristic #3: Universal Screening

There are several ideas in DAP that support the use of universal screening in RtII. One of the purposes of assessment in DAP is to determine program effectiveness and decide if children are reaching goals. Only by assessing all children in some consistent manner can this be ascertained. Another term for this would be using an assessment universally for all children, which is what RtII does. Universal screening is a way to see if children, as a whole and individually, are doing what is expected of children of that age. For example, screening on a literacy measure indicates to teachers and administrators if the school's literacy program is effective or not. It also helps identify which students need further attention to determine where they might need additional support in order to reach the overarching goals in literacy.

Core Characteristic #4: Data-based Decision Making

Data-based decision making puts students at the center of the instructional focus. Determining how a student is responding to instruction is pivotal in guiding further instructional decisions about what instructional strategies to use, what types of groupings to use, and curricular changes. Basically, data-based decision making guides a teacher's next instructional move. When using data to guide instructional decisions, there is no one pre-determined pathway to learning. The pathway to learning for each child is different and unique. This use of assessment to guide instructional decisions supports developmentally appropriate practice's assertion that assessment needs to be strategic, purposeful, systematic and ongoing. It also acknowledges the premise of DAP that each child has his or her own unique developmental continuum.

Core Characteristic #5: Shared Ownership

The notion of shared ownership in RtII does not have any direct link with DAP. There is an indirect link, however, to DAP's notion of the importance of creating a caring community of learners. Both of these concepts relate to the idea of creating a culture of collaboration. RtII creates a culture of collaboration *between educators*, whereas DAP creates a culture of collaboration *within the classroom*.

Core Characteristic #6: Parental Engagement

The centrality of parent participation is a core belief of both RtII and DAP. In both, parents are seen as playing a crucial role in a child's successful development.

RtII and DAP—In What Ways Are They Inconsistent?

Since the core characteristics of RtII were used to organize the discussion around what aspects are consistent with DAP, that same structure will be used in this next section. The discussion will now turn to what aspects of RtII are inconsistent with DAP, what assurances should be kept in mind and/or what pitfalls should be avoided in order to maximize developmental appropriateness when implementing a response to intervention model.

Core characteristic #1: Tiered Interventions

There is nothing inherent in the concept of tiered interventions that could be considered inconsistent with developmentally appropriate practice. However, there are several things that should be kept in mind. First, an assurance that groupings are flexible should be maintained. Children should be able to move in and out of groupings as soon as possible. If in an intervention group, as soon as that child reaches mastery of that skill, he or she should be allowed to move out of the group without having to stay because of scheduling ease or convenience in managing the groups. Another aspect that should be kept in mind is the careful matching of a learner's characteristics and the instructional strategies used in an intervention group. There should be a good match between how a child learns and how he or she is being taught. Getting locked into specific interventions targeting a specific need without regard for how a particular child learns should be avoided.

Core Characteristic #2: Standards-aligned Instruction

As previously mentioned, an aligned curriculum is important in both RtII and DAP. This area, however, has a great potential for not being addressed in a developmentally appropriate way. In RtII, standards-aligned instruction refers to alignment with Pennsylvania's State Academic Standards. The following curricular areas have standards beginning in 3rd grade and can be found at PDE's website: Science and Technology; Environment and Ecology; Civics and Government; Economics; Geography; History; Arts and Humanities; Health, Safety, and Physical Education; Family and Consumer Sciences; and Career Education and Work.

In July 2010, the Pennsylvania State Board of Education approved Common Core Standards in the areas of English Language Arts and in Mathematics. The common core standards cover students in Kindergarten through twelfth grade. Currently, there are two other sets of draft standards in the areas of Interpersonal Skills and School Climate awaiting action by the State Board of Education. Pennsylvania has also established standards for Early Childhood.

The areas found in the Pennsylvania Learning Standards for Early Childhood for first and second grade are Approaches to Learning; Arts and Humanities; Family-School-Community Partnerships; Health, Safety, and Physical Education; Mathematics; Personal-Social; Reading, Writing, Speaking, and Listening; Science (encompassing Science/Technology and Environment/ Ecology); and Social Studies (encompassing Civics/Government, Economics, Geography, and History). Reviewing each of these areas in detail reveals that there is a great deal of similarity even if they are structured somewhat differently.

A common pitfall in public education is to overly emphasize some areas of the standards with scant attention paid to other areas. For example, in most schools, large portions of the day in the primary grades are devoted exclusively to Language Arts and Mathematics with little time for other curricular areas. Another common pitfall in public education is to only acknowledge the existence of the standards in third grade and above. The tendency then is to simply push those standards downward. To assure that RtII is part of an overall developmentally appropriate program in the primary grades, schools should use Pennsylvania's Early Learning Standards as the framework for program development. By using these standards, a continuous program for children can be developed that recognizes the unique needs of children in kindergarten, first, and second grades. Also, by using these standards, continuity can be ensured for students coming from preschool programs. Preschool programs in Pennsylvania have available to them the Early Learning Standards for their age levels (Infants-Toddlers and Pre-kindergarten), which provides a continuum in standards tying into school-age standards.

Core Characteristic #3: Universal Screening

Although the use of universal screeners is supported by some principles of DAP, there are some potential pitfalls to avoid. In choosing what measures to use for screening purposes, it should be considered whether it can be given in a context that relates to children's learning. Selecting an instrument that is given in artificially contrived conditions would be less acceptable than using a measure that uses authentic tasks representative of the everyday activities of children.

Core Characteristic #4: Data-based Decision Making

Keeping students at the heart of instructional decisions is the focus of both RtII and DAP. When making decisions in RtII, there are some things to keep in mind in order to ensure that it is being implemented in a developmentally appropriate manner. Educators must be careful not to base decisions on a single measurement item or to use only one type of measure as an indicator for a skill area. For example, establishing a student's need for a phoneme segmentation intervention should not be based solely on one instance of observing that behavior. The decision should be based on several instances of directly observing that behavior in several contexts and with various types of phoneme segmentation tasks.

Core Characteristic #5: Shared Ownership

Because there is no direct link with this RtII characteristic to DAP, it is important that this area be intentionally addressed when planning a developmentally appropriate RtII model. This can easily be done by sharing goals with students and having them participate in a plan to reach those goals. Children can also be encouraged to self-evaluate their progress toward meeting

goals. Making goal setting and attainment a joint effort between student and teachers brings a new level of meaning of shared ownership into the RtII framework.

Core Characteristic #6: Parental Engagement

Even though parental participation is a core belief of both RtII and DAP, the roles parents play under both frameworks are very different. With RtII, the focus is on simply the sharing of information about children's progress and garnering the support of parents to participate in home activities to help students reach school goals. DAP, however, seeks to bring the family's values into the classroom in order to honor the respect given to an individual child's unique context. In DAP, parents are not seen as only providing support for the school's goals but rather as an extension of the child. Schools desiring to implement RtII as part of an overall developmentally appropriate program need to expand their conception of parental engagement and involvement. Schools need to see parents as an important part of the child's life and context. Parents are an integral part of the educational community and not just simply supporters of the school's goals.

Merging Two Fields – Revisited

From the example illustration, one can see that a great deal of commonality can be found between RtII and DAP. One can also see there are areas of incongruence which will prove difficult to reconcile. First, the two fields have different images of the child with early childhood being more child-centered and elementary education being more teacher-centered. Secondly, family engagement is perceived differently with early childhood having a much more comprehensive understanding of the role of families. Third, public schools face a reality that is not present in environments focused on the pre-school years: accountability. High-stakes testing has pressured many public schools to focus narrowly on test results, which is in direct contradiction to developmentally appropriate practice. Yes, there are some barriers to overcome, but with open, solution-focused collaboration, the two fields can come together with a new understanding of how developmentally appropriate practice can be successfully implemented in public education. In fact, RtII may be one of those practices. The early childhood education recently recognized it as a promising practice (Odom, Barbarin, and Wasik, 2009). According to them, "models for RTI…have been developed for early childhood education and are consistent with many of the approaches identified through developmental science." (p. 588). Perhaps the reality of a PK-3 philosophy (as envisioned by the early childhood community) enacted in the realm of public education is not as improbable as some would have us believe.

DAP in Public education - Debunking Myths and Personal Interpretation

Much of the difficulty implementing developmentally appropriate practices in the public school setting stems from differences of personal interpretation of DAP and some of the myths held about developmentally appropriate practice. Goldstein (1997) refers to the challenge of implementing DAP in public education as being "between a rock and a hard place." She discussed the difficulties primary teachers have with being faced in situations requiring choices between two practices. In one example, the teacher directs a child to continue to work on a moon project instead of flying about the room like superman. At other times, the teacher allows children to make choices for activities rather than directing them herself. The balance between teacher-directed versus child-directed activity is up to interpretation by the teacher. She states, "The DAP framework can be ambiguous, so teachers need to make decisions and choices...the precise balance between teacher choice and child choice is unclear" (p. 16). When teachers are

required to make judgments or interpret vague guidelines, inconsistency can be expected. In acknowledging the challenges in implementing DAP in the primary grades, Goldstein urges, "the early childhood education community to attend more carefully to the primary grades, and begin to address more directly and explicitly the particular issues related to the implementation of DAP in elementary schools." (p. 21)

Sometimes a reluctance to accept DAP in the elementary is the result of false beliefs about developmental appropriateness. Kostelnik (1993) outlines five commonly held myths about DAP. These five myths are:

- There is only one right way to implement a developmentally appropriate program.
- Developmentally appropriate programs are unstructured and practitioners offer minimal, if any, guidance to children.
- In developmentally appropriate programs, the expectations for children's behavior and learning are low.
- Academics have no place in developmentally appropriate programs.
- DAP is inappropriate for culturally diverse groups, for children of varying socioeconomic backgrounds, or for children with special needs.

Under myth number one, there are some who believe that the only instructional methods in DAP classrooms are constructivist in nature and there is no place for didactic methods. Subscribing to this myth creates a false dichotomy between constructivist vs. didactic teaching and supports the notion that they cannot co-exist. But, in recent years, it is becoming apparent that in the primary grades and earlier, they can both play a role in developmentally appropriate practice. In the latest edition of *Developmentally Appropriate Practice in Early Childhood: Serving Children from Birth through Age 8,* it states "teachers recognize the importance of both child-guided and teacher-guided learning experiences (Copple and Bredekamp, 2009, p. 296). The guidelines given for teaching methods designed to enhance development and learning advocate a balance of teacher-directed and child-directed learning experiences—entirely relying on one method or the other undermines optimal learning conditions. The latest research in developmental science sheds light on the didactic vs. constructivist teaching debate. The *Handbook of Child Development & Early Education: Research to Practice* (Barbarin & Wasik, eds., 2009) details the latest research in developmental science and its implications for practice in early childhood. In the area of didactic vs. constructivist teaching, the concluding chapter by Odom, Barbarin, and Wasik states:

> A developmental science perspective may question whether this dichotomy [didactic vs. constructivist teaching] is universally appropriate for all types of learning. Rather, there are situations in which intentional and explicit instruction is appropriate for a child's learning needs and, alternatively, when it is appropriate and effective to foster children's self-guided engagement and discovery. (p. 583)

Toward a New Definition—DAPE (Developmentally Appropriate Public Education)

The PreK-3 movement challenges the field of education to merge the two distinct traditions of elementary education and early childhood education into one with a new and unique identity. One of the premises of PK-3 is the use of developmentally appropriate practices across that continuum. To achieve a true merger or continuum of practice between the fields demands an acknowledgement of the different constraints and deep philosophical differences inherent in

the two disciplines. The primary grades are housed within the public educational system. Within this system are a few immutable facts. First, it is part of American culture that the goals of education are to train students for future careers (Joseph et al., 2000). The culture of curriculum in America is to produce members of society who will contribute to the economic growth of the nation, participate in a free-market society, and have material success. The standards set by departments of state typically have this end goal in mind. As Judy Helm (2008) reminds us, though, having standards does not mean teachers must give up on engaged learning. Content and skills can be delivered through project-based activities and other child-initiated endeavors often with deeper levels of understanding than teaching strategies focusing on passive drill and practice. Nor does it mean rigid expectations. It is possible to have standards without standardization (Darling-Hammond, 1997). Curriculum can be flexible and responsive to student individuality.

As mentioned previously, the goal in this PK-3 conversation is to accept what exists as fact inherent in our distinct fields of discipline and move toward a true, viable merger and application within our public school system. Developmentally appropriate practice can be achieved in public education as an overall, overarching philosophical approach that entails (as one small component) the goals of education in America. Educators need to have a two-sided conversation—an academic achievement discourse embedded within an overall human development discourse. To do this, there needs to be clarification as to the concept of developmentally appropriate practice and the distinct manner in which it is manifested in preschool education and in primary grade education.

Conclusion

The PK-3 philosophy is achievable in public education despite the difficulty presented because of the necessity to merge two distinct fields. The potential for this has been illustrated by mapping the Response to Instruction Intervention model onto the tenets of DAP. What we need are additional real-life analyses of current practices so that we can move the conversation of PreK-3 alignment from the academic arena into the real practice of real schools. We also need to learn from the current examples of schools embracing a PK-3 philosophy. Maeroff (2006) introduces many schools that have embraced the PK-3 philosophy and are doing it successfully both in the private sector and in public magnet schools. By looking at analyses of practices on a widespread scale and looking at particular schools that have successfully implemented DAP, we can come to understand how PK-3 can be achieved in public education.

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Charting a Path to Quality Classroom Assessment Destination: Improved Student Achievement

Robert Iuzzolino
Retired

Imagine the following scenarios:

Scenario 1: About halfway through a test, a student raises his hand and tells the teacher the following: I don't remember discussing the information dealing with Questions 6, 10, 15, and 24. The teacher responds by telling the class to cross those four questions out as well as question 33, because the information contained in those items was not covered.

Scenario 2: An elementary student receives back her score on a multiple choice reading assessment. The student had a moderate number of items incorrect and is asked by her parent if she was able to go over the items that were missed to see what the appropriate answers were and why. The student response was "No." Then she is asked if an opportunity existed to take another assessment to improve on the initial one. The student said, "No, we just move on to the next topic."

Scenario 3: A teacher distributes a test to her students and makes the following comment, "The test is divided into T/F, Multiple Choice, Matching, and two short essays. You will have the entire period to complete the test. In addition, the matching section has 18 items with half on one page and the other half on the next page, so you will need to look at both pages to complete this part. Any questions?...You may begin."

I note these three real-life scenarios, not for any negative implications, but to identify some critical elements of the classroom assessment process. As pointed out by various assessment experts, classroom assessment is more important than one-time state assessments. Therefore, we need to ensure that teachers are equipped with the tools for developing sound, effective classroom assessments. Miller (2009) points out that "Knowing how to create quality assessments and effectively use them, to read and interpret data effectively, and then to adjust instruction accordingly can be a significant shift for teachers" (p.2). She further notes that, "Few teachers, especially those that have been in the classroom for several years, have been taught assessment skills in their teacher preparation courses" (p.6).

What follows is an overview of four essential elements that individual teachers need to consider in moving forward to enhance or improve their classroom assessment system. These elements are derived from my experiences as a building-level administrator responsible for evaluating and improving classroom assessments; teaching graduate and undergraduate assessment courses; working as a regional director for curriculum, instruction, and assessment; incorporating the research about classroom assessment; and consulting with school districts concerning assessment.

The first key element is to develop the concept of ***assessment literacy***. Paterno (2001) has defined assessment literacy as "the possession of knowledge about the basic principles of sound assessment practice, including terminology, the development and use of assessment methodologies and techniques, familiarity with standards of quality in assessment…and

familiarity with alternatives to traditional measurements of learning" (pp. 9-10). Assessment literacy is the foundation of any sound and quality assessment design. As Popham (2004) points out, "Assessment illiteracy is surely a prescription for professional suicide" (p.82). The National Education Association (2003) emphasized the need for assessment literacy when it endorsed the following: "Every educator must understand the principles of sound assessment and must be able to apply those principles as a matter of routine in doing their work. Accurate assessment is not possible unless and until educators are given the opportunity to become assessment literate. [They] must understand student achievement expectations and how to transform those expectations into accurate assessment exercises and scoring procedures" (p.4).

Our district viewed assessment literacy as a way to build the assessment culture, to make a strong connection for our written, taught, and tested curriculum, and to develop a common language so we could engage in meaningful discourse concerning classroom assessment. As the district developed an assessment system with an evaluation component, the terms and concepts associated with the assessment process were reinforced through workshops, handouts, "points- to-ponder informational sheets" and one-on-one conferencing.

We wanted individuals to feel comfortable discussing the language of assessment and demonstrate through examples the use of assessment concepts when creating an assessment. For example, a concept we emphasized as a tool to help teachers carefully plan and design an assessment was a Table of Specifications. During discussions with teachers, the district's expectation was that each teacher would be able to describe the key characteristics of the table and then show how he/she used it to develop an assessment.

The document titled *Standards for Teacher Competence in the Educational Assessment of Students* (AFT, NEA, NCME, 1990) is a useful starting point for discussion involving assessment literacy. The *Standards* explicitly address the types of knowledge and skills that teachers should possess in order to assess student learning. They also provide an excellent opportunity for ongoing reflection and discussion concerning classroom assessment and assessment in general. As Stiggins (2007) suggested, "We must build a long missing foundation of assessment literacy at all levels of the system, so that we know how to assess accurately and use results productively" (p.29).

The second element in developing an effective classroom assessment system involves ***test construction***. Test construction is an assessment skill that is often overlooked. However, effective classroom assessment is the result of thoughtful planning, skillful question writing, careful combination of questions into a total test, and proper administration and scoring of the assessment. To guide test construction, I adapted Gronlund's (2000) steps of planning, implementing, and evaluating classroom assessment to serve as a frame of reference for teachers. By assuring that these three phases of assessment are addressed, teachers can affirm that the assessments align with curriculum and instruction.

As described in Scenario 1, the teacher relied on a commercially produced assessment without carefully analyzing the items in the assessment. Planning, a critical function of test construction, would have eliminated Scenario 1 for the teacher and students. In Scenario 3, the teacher violated certain guidelines for writing matching items. When creating assessment items using different questioning types, one needs to consider the general and specific guidelines, as well as the strengths and limitations associated with each type that will enhance the quality of the assessment. The main outcome is that the effective application of test construction practices will

provide teachers with useful diagnostic information about the knowledge gained by their students. The significance of this element is reflected by Schafer (1993) when he noted: "Assessment is commonly done haphazardly, without knowledgeable planning, implementation, or interpretation in classrooms at all levels of education, with negative consequences for students in terms of the content they learn, the way they learn it, and the quality of judgment made about their achievement" (p.123).

The third important element is ***formative assessment***. Black and Wiliam (1998a) provide evidence that high quality formative assessment has a powerful impact on student learning. The Council of Chief State School Officers (2008) provided the following commonly used definition – "Formative assessment is a *process* used by teachers and students during instruction that provides feedback to adjust ongoing teaching and learning to improve students' achievement of intended instructional outcomes" (p.3). The National Education Association (2003) noted that formative assessment is both an instructional tool that teachers and their students use while learning is occurring and an accountability tool to determine if learning has occurred.

Teachers employ formative assessment to generate information as to how student learning is progressing. Teachers then use the information to make necessary instructional adjustments that can significantly improve student achievement. The skilled implementation of the research-based formative assessment process promises over time to shift classroom practices in a manner that builds a learning culture. However, some confusion exists between the research and current practice. Moss and Brookhart (2009) noted that a common misconception that teachers and school leaders hold is that formative assessment is a special type of test or series of tests. Shepard (2006) believes that the marketing approach used by companies is corrupting the meaning of the term formative assessment, thereby diminishing the potentially positive effects on student learning. She writes that the research-based concept of formative assessment, closely grounded in classroom instructional processes, has been taken over (hijacked) by commercial test publishers and used instead to refer to formal testing systems called benchmark or interim assessment systems. For example, educators have encountered a burgeoning of so-called formative assessments offered by commercial test publishers to help raise test scores for NCLB. The misuse of the formative assessment label has become so pervasive that Kahl, (2005, 2006) an assessment CEO, invested in a series of essay-length advertisements in *Education Week* to warn educators that what vendors are selling are not truly formative assessments.

Although Black and Wiliam (1998a) concluded that the combination of ongoing assessment by teachers with appropriate feedback to students could have powerful and positive effects on achievement, they also report that the characteristics of high-quality formative assessment are not well understood by teachers and that formative assessment is weak in practice. According to Popham (2011), "If we are to promote use of the formative-assessment process, it's crucial that more educators accurately understand the process in the way that empirical studies have shown it works best. If research-ratified versions of the formative-assessment process are used widely by teachers, then many more students will learn better and faster. But if formative assessment is regarded as nothing more than a specific sort of test, its impact is apt to be trivial" (p.35).

Educators who use formative assessment well begin by identifying what students are expected to know, understand, and accomplish. Instruction aligns with identified expectations, and assessment aligns with instruction. Teachers account for their own performance in the classroom by teaching in ways that reflect this alignment, gathering information of students'

achievements, and responding to that information by adjusting instruction. Black and Wiliam (1998b) offer three recommendations to provide some guidance to educators with regard to the use of formative assessment:

1. Frequent short tests are better than infrequent long ones.
2. New learning should be tested within about a week of first exposure.
3. The quality of the test items is essential.

Chappuis and Chappuis (2007) add, "The greatest value in formative assessment lies in teachers and students making use of results to improve real-time teaching and learning at every turn" (p.17).

The final element is ***feedback***. There is little debate among educators regarding the contributory value of quality feedback to student learning. Bellon, Bellon, and Blank (1992) noted, "Academic feedback is more strongly and consistently related to achievement than any other teaching behavior…. This relationship is consistent regardless of grade, socioeconomic status, race, or school setting….When feedback and corrective procedures are used, most students can attain the same level of achievement as the top 20% of students" (pp. 277-78). Yet there exists a wide gap between the research and classroom practices. Kea (1988) found that teachers used only a minimal amount of their instructional time to provide feedback to their students and that the most frequent type of feedback was simple, positive feedback (e.g., "Yes, that's correct"). Kea also found that specific corrective feedback in response to student errors was limited and that explanatory feedback for correct responses (i.e., explaining why a student's answer was correct) was minimal. A study conducted by Herman, Osmundson, Ayala, Schneider, and Timms, (2005), found that the use of feedback varied considerably, but in most cases was relatively rare. They also noted that it was rarer still for teachers to go beyond types of feedback – such as " good," "ok," "what do you mean?" – to the kind of descriptive feedback or substantive follow-up that has been associated with learning increases.

Although teacher feedback may be observed in various classrooms, Black and Wiliam (1998a) emphasize the feedback does not always serve as an effective classroom assessment tool. "There are clearly recorded examples…in which teachers have, quite unconsciously, responded in ways that would inhibit the future learning of a pupil. What the examples have in common is that the teacher is looking for a particular response and lacks the flexibility or the confidence to deal with the unexpected. So the teacher tries to direct the pupil toward giving the expected answer" (p.143). Returning to Scenario 2, we witness a missed opportunity to provide valuable instructional feedback to the student. Useful feedback, as Guskey (2005) points out, is "both diagnostic and prescriptive. It reinforces precisely what students were expected to learn, identifies what was learned well, and describes what needs to be learned better" (p.6). Whether verbal or written, instructional feedback should go beyond indicating the degree of right and wrong to include suggestions on how the learner can improve the next time. Classroom assessment research tells us that students learn significantly more when we involve them in the assessment process and increase the amount of descriptive feedback they receive, while decreasing the amount of evaluative feedback (Black, Harrison, Lee, Marshall, & Wiliam, 2003).

The research also strongly supports the notion that providing appropriate feedback is one of the most powerful strategies teachers can do to move students along in the learning process and enhance achievement (Hattie, 1992, Stronge, 2002, Hattie and Timperley, 2007). Marzano, Pickering, and Pollock (2001) suggest that the use of feedback should be guided by four generalizations. Feedback should be corrective in nature, specific to a criterion, timely, and provide for student self-evaluation.

This article was not meant to be an exhaustive treatment of the classroom assessment process. I offer this information as a guide – a guide for administrators and teachers as they collaborate to develop, implement, and monitor their classroom assessment system. Additional readings, reflections, and discussions will be necessary for any district to establish an effective classroom assessment system, regardless of the district's present level of assessment sophistication. A local classroom assessment system is not established quickly and in one fell swoop. It evolves. By attending to the four elements above, educators will be moving - gradually and deliberately - toward an assessment system that provides meaningful data for making inferences about student achievement and for guiding decisions about instructional practices.

Classroom assessment matters. Changing how classroom assessment operates in schools is not inconsequential. Classroom assessment can be one of the most powerful levers for enhancing student learning. As Stiggins (1988) points out, "The time has come to recognize that measuring student performance is not synonymous with giving standardized tests. The most important assessment of learning occurs in the classroom." Stiggins (1999) adds, "If teachers do not understand how to produce quality assessments and use them well, their students are placed directly in harm's way. Because the academic well-being of the student hangs in the balance, excellence in classroom assessment is a must" (p. 27).

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Elementary Departmentalization: Melding a Content-Area Emphasis with a Continued Focus on the Individual Child

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"The cherished image of the traditional elementary school with its self-contained classrooms and solitary teachers is disappearing" (Duke, 2006, p. 27). Confronted with the politics of *No Child Left Behind* and escalating Adequate Yearly Progress requirements, educators and administrators are feeling pressure to significantly increase student achievement (Andrews, Duncombe, & Yinger, 2002; Duke, 2006; Research for Action, 2004). In response to this pressure, schools may be drawn to making changes in organizational structures, particularly because these adjustments are visible indicators of action to both those inside and outside of the educational system (Elmore, Peterson, & McCarthey, 1996). One such option for the reorganization of elementary schools—departmentalization—has come in and out of popularity throughout the last century (Anderson, 1966; Franklin & Johnson, 1967).

Contemporary Organizational Practices

In an era in which research-based decision making is demanded, a review of the literature in regard to departmentalization proves of minimal value. The few studies that can be found addressing student achievement and social-emotional development are generally very dated. Much of the literature provides opinions on the issue rather than empirical evidence and tends to be inconclusive and contradictory. Moreover, few research studies look specifically at *elementary-level* departmentalization. Thus, after almost a century of discussion, there remains no definitive answer to the question of which organizational structure is most effective at the elementary school level.

Reports by McPartland (1987) and McPartland, Coldiron, and Braddock (1987) suggest that educators need to balance the trade-offs between the high quality content-area instruction that departmentalization is designed to achieve and the positive teacher-student relationships fostered by self-contained structures. However, the line between self-contained and departmentalized classrooms is not as sharply drawn today as it was in the past. In contemporary education, even classrooms deemed self-contained tend to receive instruction in subjects such as art, music, and physical education from specialized instructors. Additionally, a continuum of possible semi-departmentalized configurations exists between the modern, self-contained classroom and full departmentalization. Thus, the lack of a clear definition of the concept of departmentalization complicates any analysis of the available research. In addition, the applicability of the available, dated research must be brought into question given all of the changes in the institution of education since the implementation of *No Child Left Behind*.

In order to better examine the concept of departmentalization in the current educational context, the case of one rural Pennsylvania school district currently practicing elementary departmentalization was studied. For the purpose of this research, departmentalization was defined as an organizational structure through which students received core content instruction from at least two different teachers during the school day. The study focused on one district's decision-making process in determining whether or not to departmentalize at the intermediate elementary level and also examined the impact of departmentalization from the perspectives of the superintendent, curriculum director, elementary principal, teachers, and parents.

At the time of this study, the sixth-grade classes in this district had been departmentalized for more than thirty years. At that grade level, each teacher taught reading, communications, science, or mathematics. All sixth-grade teachers also taught social studies to their homerooms. Fifth grade was just beginning their second year of departmentalization. concentrating only on departmentalizing for math and reading. Fourth grade was piloting departmentalization during one period of the day (rotating science, social studies, and writing) in consideration of the possibility of departmentalizing in the future. The findings from this study suggest that the implementation of a semi-departmentalized structure in the intermediate elementary grades may effectively reduce many of the potential limitations typically associated with departmentalization by tapping the benefits of a subject-area focus, while continuing to maintain a strong connection to the individual child.

The Impact

Interviews with the district's administrators, teachers, and parents alike revealed that each of these stakeholder groups believed the benefits of departmentalization clearly outweighed any limitations. The advantages of departmentalization, identified by the study participants, confirmed a number of benefits suggested by the relevant research literature. These benefits included 1) the ability to provide expert instruction and foster deeper learning through specialization, 2) the enthusiasm for the subject area communicated by specialized instructors to their students, 3) dedicated time consistently scheduled for each subject area, 4) the opportunity to develop more extensive and effective lesson plans, 5) the cost-effectiveness of professional development, 6) increased collaboration among colleagues, 7) opportunities for student movement, and 8) exposure to varied teaching styles (Goodlad, 1966; Hood, 2009; McPartland, 1987; McPartland, Coldiron, & Braddock, 1987).

In discussing the drawbacks of departmentalization, participants reported they had few concerns with the practice. Potential limitations, suggested by the extant research, were all essentially rebutted by the study participants. For example, reports by McPartland (1987); McPartland, Coldiron, and Braddock (1987); and Walters (1970) suggest that difficulty in developing close, supportive relationships with each individual learner serves as a drawback of departmentalization. However, teacher-student relationships in the district of study were actually noted to have improved through departmentalization due to teachers' increased knowledge of the entire grade level population.

Second, as noted by Becker (1987), poorer performing students, in particular, may suffer academically from the lack of a connection to a consistent instructor with a deep knowledge of their individual needs. While a few of the study respondents did mention less opportunity for support of weaker students as a *potential* drawback, they noted that their district had established structures, such as a study period, to successfully address this concern.

In addition, the rigid bell schedules of a departmentalized structure can place time pressure on the learners (Hamalainen, 1967; Lobdell & VanNess, 1967; Thornell, 1980) and constrain teachers who must present their course material within defined class periods. No opportunity exists for extending learning by modifying the schedule as a self-contained instructor can easily do (Walters, 1970). While some respondents did express concern with the rigidity of the time schedule and the loss of "teachable moments," the tighter schedule had the benefits of heightening emphasis on effective use of time and of protecting subjects from being short-changed.

As suggested by Lobdell and VanNess (1967), elementary teachers are trained as generalists and lack the preparation to serve as subject area specialists. However, district administrators noted that departmentalization allows them to provide greater support for teacher growth through professional development focused on an area(s) of emphasis rather than on all subjects. In addition, the scope of elementary certification offers broad opportunities for elementary teachers to become specialized instructors in any core subject area, heightening the availability of properly certified instructors, rather than restricting it.

Walters (1970) indicates that disorganization of materials and lack of storage causes frustration with departmentalization, and McGrath and Rust (2002) suggest that the transition between classes results in the loss of instructional time. However, within the district of study, well-defined and consistent policies and procedures appeared to curtail transitioning concerns, such as disorganization of materials and loss of instructional time.

Finally, departmentalized curricular structures—both within and outside of self-contained classrooms—have been criticized as being too isolated and lacking meaningful opportunities for subject-matter integration (Goodlad, 1966; Lobdell & VanNess, 1967; Walters, 1970). The traditional model with a generalist as the instructor is often viewed as more easily facilitating cross-curricular connections (Hood, 2009). While subject matter isolation was perceived by some of the study participants as an area truly in need of improvement in their district, it was noted that strategies could be implemented to address the issue. For example, the incorporation of cross-curricular units was suggested as a means of effectively bridging the curricula and reducing the concern regarding content isolation.

In summary, given the evidence from this district's experience, it appears that a carefully planned semi-departmentalized structure in the intermediate grades—melding a content-area emphasis with a continued focus on the individual child—may effectively reduce the potential limitations of departmentalization and yield a variety of benefits supporting student achievement.

Recommendations for Implementation

Several recommendations can be made for those considering elementary departmentalization. Weiss (1995) suggests the need to "take steps early in the development of a venue-changing reform to learn the values, interests, and knowledge of those who will become participants in decisionmaking [sic] and the institutional press of their environments" (p. 589). Specifically, decision makers need to be aware of the applicable rules, structures, and norms of the institution and how these have impacted individuals' interests, beliefs, and background knowledge regarding departmentalization. By giving consideration to these factors, steps which may be necessary in order to gain acceptance of a potential change and to facilitate its success

can be determined early. For example, in a community where the norm has been a self-contained model, far more information sharing may need to occur in order to lay the groundwork for acceptance.

Next, the district must have a structure in place to support the success of the change. Adequate staffing levels, common planning time, convenient room locations, and appropriate subject-area expertise/interests among the available teachers are all examples of resources needed to support the success of departmentalization. Without the necessary structures for support, frustration and/or failure are inevitable.

Third, teacher buy-in is critical for the success of departmentalization. In this particular district, a bottom-up decision-making process ensured that the faculty members were open to the concept of departmentalization, had ownership of the ultimate decisions, and were committed to achieving success with the structure. A more top-down approach without the necessary teacher buy-in could have sabotaged the initiative.

Fourth, a one-size-fits-all design should be avoided. Each grade level's structure may need to be different based upon factors such as the available staff and their expertise and interests, the applicable state standards and assessment requirements, the maturity level of the students, and the structure of the previous and following grade levels. A gradual progression of increasing departmentalization, however, may facilitate the students' success with factors such as organization and transitioning.

Fifth, consideration needs to be given to the impact of departmentalization on other programs and services beyond the core. For example, special education and Title I interventions along with extra-curricular activities that occur within the school day, such as band and choir, need to be taken into account in the decision-making process and in the design of the structure. Plans should be made to maximize the potential of each program in order to avoid establishing structures that have a negative impact on any particular subgroup of students.

Additionally, districts with "feeder schools" should take into account the need for structural consistency across the grade levels in the various schools in order to maximize the success of the transition to the next school. If students have differing levels of experience with departmentalization from the various feeder schools, the merger may prove more challenging.

Finally, the isolation of content areas, heightened by departmentalization, needs to be recognized and addressed. The development of cross-curricular units should be strongly encouraged and fostered in order to allow opportunities for integration and to reduce the impact of this isolation.

Clearly, many questions for further investigation still remain. Additional research will be needed in order to more definitively establish the ultimate effect that elementary departmentalization has on student achievement. However, in the current institutional context with increasing accountability for maximizing student progress, this approach appears to offer the potential to improve student achievement by melding the academic benefits of a content-area emphasis with the continued traditional elementary focus on the individual child.

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Ongoing Support for Novice Educators: Online Classroom Support Modules

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For nearly 25 years, Chapter 49 of the Pennsylvania Code has required completion of a Pennsylvania Department of Education-approved induction program in order to apply for an Instructional II certificate. When this requirement was first announced in 1987, school districts began designing and conducting mentoring and induction programs to meet this mandate. By 1992 districts had developed required sets of topics, often including an orientation to the workplace, roles and responsibilities; accessing necessary instructional materials and resources; planning for engaging instruction; managing behavior and professional tasks; meeting the needs of students with exceptionalities; assessment for continuous improvement; applying educational research; and emotional support (Sweeny 2006). Many school districts have continued this topical approach and continue to take sole responsibility for developing and delivering the induction program.

It is important to note, however, that according to Pennsylvania Code, "the preparing institution shall provide ongoing support to novice educators in partnership with public schools during their induction period, including observation, consultation and assistance" (Pennsylvania Code Title 22, Chapter 354.26(c)). This call for partnership between school districts and preparing institutions is not new nor is it unadvised on the part of the Pennsylvania Department of Education. A study by Hankin (2006) revealed that having multifaceted support was important for new teachers. Even though the strengthening of partnerships between school districts and preparing institutions is one recommendation in a paper co-sponsored by the American Association of Colleges for Teacher Education and the National Education Association (Grossman, 2010), there has not been a strong partnership between these entities. Beginning in 2009 with the new program approval process, the Pennsylvania Department of Education now requires preparing institutions to document how they are partnering with school districts to support the induction process. In order to meet Pennsylvania Department of Education standards, the institution must have a new teacher support program in place for graduates immediately following graduation and conduct active outreach to its graduates for a minimum of two years (Pennsylvania Department of Education, 2009). With this increased attention to the requirement for partnerships, the time is right for a change in how induction programs are designed, developed, and delivered.

Characteristics of Effective New Teacher Support Programs

Several studies on the needs of new teachers have recognized the need for multifaceted approaches to supporting novice educators (Bickmore & Bickmore, 2010; Bransford, Brown, & Cocking, 2000; Cooley & Johnston, 2001; Hankin, 2006; Rowley, 1999). Scholars believe that effective new teacher support programs must not only offer instructional feedback and model continuing professional growth but also provide ongoing technical and instructional support as novice educators grow in their understanding of teaching and learning (Cooley & Johnston, 2001;

Rowley, 1999). Additional research suggests that effective new teacher support programs also provide hands-on training on an as-needed basis, encourage collaboration between new teachers and colleagues, and provide timely feedback on instructional practice and professional behaviors (Forbes, Linaberger, & Yamamoto, 2005).

Further, Hankin (2006) in a study of six key informants in three Pennsylvania Intermediate Units found that induction programs must address both individual needs and needs common to all new teachers. A later study of middle school induction programs identified strategies for providing both individual and common support for novice educators (Bickmore & Bickmore, 2010), such as mentor teachers, proactive principals, collaboration with others, targeted professional development, and new teacher orientation as necessary elements for successfully supporting new teaching staff.

Finally, in a review of the effectiveness of induction programs, Ingersoll and Smith (2004) suggest that effective induction programs "offer bundles or packages of supports" and include an opportunity to interact with both mentors and other novice teachers as they master the art of teaching (p. 38). The Pennsylvania Department of Education (PDE) suggests that preparing institutions may be able to help districts meet these needs by providing another facet to the professional development arsenal of school districts. As a result of the Pennsylvania Department of Education requirement for partnerships between preparing institutions and school districts, many of Pennsylvania's higher education institutions have recently been engaged in developing the types of new teacher support packages recommended by Ingersoll and Smith (2004).

Online Classroom Support Modules

Almost a decade ago scholars recognized that federal and state funding for school districts would decline placing pressure on schools to cut expenses (Cetron & Cetron, 2004). More recently, Pennsylvania's governor recently signed into law House Bill 1352 (2011) as a response to the continued decline in funding. This bill, known as the Omnibus School Code Act, alleviates pressure on districts to pay for professional development by suspending the requirement for continuing professional education credits for a two-year period beginning in 2011. One suggestion to help districts cope with declining funding is to incorporate low-cost online modules for professional development as a component of a larger professional development plan (Forbes, Linaberger, and Yamamoto, 2005). This suggestion allows districts to continue support of new teachers. Although the support programs developed by preparing institutions and school districts can take a variety of forms including face-to-face, hybrid, and online programs, many institutions are adopting an online format in order to meet the needs of graduates who move on to geographically diverse areas. The following example of online classroom support modules, developed by Gannon University as a response to the PDE requirement, is provided to supply school districts with an idea of the types of online offerings that may be available through institutions of higher education.

Design and Development

To meet Pennsylvania Department of Education requirements to support new teachers, Gannon University, an urban institution located in Erie, Pennsylvania, created a series of online modules to provide support for the development of teacher expertise. The support modules are offered through Angel, the University's Course Management System (CMS). The Angel CMS was selected as the platform for the modules as it is familiar to teacher candidates. While alumni typically do not maintain access to the Angel CMS, the University agreed to extend access for

graduates of teacher preparation programs for two years following graduation to accommodate the PDE requirement.

The support modules focus on three key areas: basic instructional skills, understanding learners, and active learning strategies. These topics were chosen based on McKeachie and Svinicki's (2005) book on teaching tips for new instructors. While the book was produced for college and university instructors, the topics were found to be aligned with the elements of professional practice expected by the Pennsylvania Department of Education and a local advisory group of school administrators and classroom teachers (Pennsylvania Department of Education, 2011). Using the McKeachie and Svinicki framework, three modules were developed to address basic teaching skills, facilitate an understanding of students, and extend the teacher ability to implement active learning strategies. Each of the modules includes several subcategories as follows.

- Basic Skills
    - Active Reading
    - Questioning/Discussion
    - Organizing Information Effectively
    - Assessment
- Understanding Students
    - Cultural Diversity
    - Differentiating Instruction
    - Classroom Environment
- Active Learning Strategies
    - Writing Tasks
    - Cooperative, Collaborative, Peer Learning
    - Problem-based Learning
    - Integrating Technology
    - Laboratory Instruction
    - Metacognition

Teacher education faculty and graduate students develop the modules at a rate of one module per semester. At this pace, modules will be developed continuously for the next few years, providing new content to attract repeat visits to the site. In addition, this rate allows for deep coverage of each topic through a variety of resources. Each module is designed to include support for new teachers in a variety of formats. Therefore, the modules include text-based materials such as PowerPoint presentations and links to research-based articles, video examples created by Institution faculty as well as links to online video resources, interactive question and answer exercises, and both synchronous and asynchronous discussion opportunities.

Implementation

The design of the modules was pilot tested in the fall of 2010 with the Differentiating Instruction component of the Understanding Students module and again in the spring of 2011 with the Questioning/Discussion component of the Basic Skills module. The modules were pilot tested with focus groups of teacher candidates at the end of their student teaching experience. The pilot testing provided feedback to module developers as well as training in module access and use for the soon-to-be graduates. Using feedback from the pilot testing, the modules were revised to include a lesson plan share option and expanded chat options before additional modules were developed. The modules are available for use by newly certified teachers for up to two years post graduation. Providing for both real-time chat and asynchronous communication, the modules are interactive and encourage communication and collaboration among participants.

Findings

Feedback from the pilot testing suggested that the online support modules are perceived as easy to access and navigate and include information useful to novice teachers. *"Layout is simple and easy to navigate, content is helpful." "I like how there is a section to pose questions and receive feedback."* As expected, comments by the focus groups praised aspects of the modules that matched the literature recommendations for effective new teacher support programs. The focus groups were particularly interested in the asynchronous discussion boards for the exchange of ideas between participants demonstrating a match to the element of collaboration in effective new teacher support programs. When asked which components were most useful, the comments included, *"Being able to post questions that peers and professors will answer." and "The idea exchange is great!"*

Focus groups also appreciated the useful practice activities provided. These activities were created with *Quandary*, a program that allows developers to design an interactive case study addresses problematic classroom scenarios and provides participants with immediate feedback on their choices as they progress through the case study (Half-Baked Software, 2011).*"The practice activities seemed to be very useful. I think it could really benefit us in many situations."* Again, this activity meets the recommendation for effective new teachers support by providing hands-on activities with immediate feedback. Finally, the participants commented on the usefulness of the links provided to external resources, helpful videos, and live chat features that allow for access to content on demand. *"This site is amazing and a wonderful resource for us once we graduate."*

Conclusions and Recommendations

It can be concluded from this pilot study that the online classroom support modules can be offered to recent graduates as a component of a larger professional development plan. As suggested by the literature on new teacher development, the online modules provide just-in-time support in a collaborative environment with individualized activities and immediate feedback. In addition, it appears that the use of a familiar delivery platform will facilitate access and use by graduates. In addition, these support packages can be provided at no additional cost to graduates of Pennsylvania teacher preparation programs or to the districts in which they are employed.

According to the literature on new teacher support, it is important to coordinate the multiple professional development opportunities that engage new teachers. School districts and teacher preparation institutions must work together to develop programs that will meet the needs of novice educators as individuals and as part of a school community. The scenario of online classroom support modules provides one piece of the professional development puzzle. Each module is designed to offer just-in-time professional development to new teachers and guide them into becoming members of a professional learning community. The modules are part of a support system that is offered to schools that hire our recent graduates and may further benefit schools as the programs are provided at no cost for our recent graduates. In addition, because the system makes use of technologies already familiar to recent graduates, the cost of expanding membership to other new teachers in local districts could be lower than the cost of financing a complete induction and Act 48 series of offerings. Based on the feedback from this study, it is recommended that other institutions consider developing similar professional development offerings to meet the needs of novice teachers as they leave their preparation programs. It is also recommended that school districts investigate the willingness of institutions of higher education to partner in the development of online professional development offerings for novice teachers.

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An Invitation to Write for Pennsylvania Educational Leadership

Denise G. Meister and Judith L. Zaenglein - Co-Editors
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