

Educational Technology Issues:  
Instructional Specialist, technology, and implementation  
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**Should K-12 schools implement instructional coaching programs that incorporate new technology (like artificial intelligence)**

**more intentionally to support teacher technology integration practices?**

**Statement of the Problem:**

The integration of technology in K-12 education has become increasingly significant, given the focus on emerging technology available like artificial intelligence. However, educators often struggle with effective technology integration due to a lack of proper resources, deployment, training, and support. This problem is further intensified by the constant adoption of educational technologies, making it challenging for teachers to keep pace and incorporate new workflows and pipelines.

**Identification of the issue:**

AI integration, like other technologies that are made available into K-12 classrooms is going to be challenge. Technology deployment and integration require planning, teacher training, and ongoing support, as well as the technology itself. Instructional professionals are crucial here. They arrange technology rollout, train teachers, and promote technology use. Since many teachers are inexperienced with AI, the roll of Instructional Specialist is even more crucial to K-12 technology rollout and integration. These professionals' effort determines deployment success. Thus, technology deployment and integration discussions should incorporate instructional professionals and their impact.

**Overview:**

Joyce and Showers' (1980) and Knight's (2007) study shows that instructional coaching is a powerful model of professional development that has been shown to increase the rate at which new strategies are used in the classroom by a large amount. It works through partnerships that bring research-based teaching methods into classes and give teachers the help they need to come up with new ideas.

As AI becomes a bigger part of our education system, teachers need to learn how to use it and incorporate it into their lessons. Darling-Hammond and McLaughlin (1995) point out that this is where instructional experts play a very important role. These experts can help teachers figure out how to make the complicated change to AI-enhanced teaching.

Instructional specialists can work closely with teachers to create a supportive and collaborative workplace. They do this by building on the ideas of traditional coaching. They can help teachers build on the knowledge and skills they already have, moving them into Vygotsky's (1978) Zone of Proximal Development, where they can use AI tools and techniques in their classrooms.

With AI becoming more common in education, it's hard to say enough about how important instructional experts are. Their work goes beyond the initial integration. It helps teachers improve their methods, which leads to better results for students in the long run (Showers & Joyce, 2002; Knight, 2007). So, any talk about putting AI technology into K–12 schools must consider how important instructional specialists are.

**Assumptions:**

Our talk about how AI technology can be used in K–12 education and how important instructional experts are is based on a few important assumptions.

First, we assume that schools have the tools they need to use technology. This includes both the AI tools themselves and the important human resources, such as instructional specialists. You can't say enough about how important these resources are for good implementation (Chapman, 1990; Pullan, 1985).

Second, we work with the idea that teachers are ready and able to learn how to use new technologies. Verspoor (1989) and Janssen-Reinin (1989) show that having the right knowledge and skills is important for making ideas work. This shows how important it is for teachers to be willing to change the way they teach and learn new skills so they can use AI and other technologies in their classes.

We also think that changing the way schools do things is a process that takes time.

Teachers need enough time to learn, change, integrate, and think about new ways of doing things (Verspoor, 1989). Miles, Ekholm, and Van den Burgh (1987) say that there needs to be a system of rewards or benefits to get people to accept change.

Participation in this change process is very important because it lets people make decisions and talk to each other together (Pullan, 1985).

Another important assumption is that key players and partners will do what they say they will do. Their commitment is essential for new tools to be used well (Chapman, 1990). Also, we think that strong leadership is needed to move these ideas forward (Havelock and Huberman, 1978).

We are also thinking that there are instructional specialists with the AI and technology integration skills we need. Their job is very important because they oversee guiding the deployment, teaching teachers, and giving ongoing support.

Lastly, we make two very important assumptions about how this process will turn out. We believe that putting technologies like AI to good use in classrooms can lead to better learning outcomes. We also think that the coaching plan is a good way to improve professional skills. Based on the study of Joyce and Showers (1980) and Knight (2007), we believe that this model can make a big difference in how new teaching methods are used.

Even though these assumptions are based on study and experience, they may not always be true. Because of this, they need to be carefully looked at in the setting of each school or district.

### **Arguments For:**

There are many reasons to use educational coaching programs, especially ones that focus on how to use AI and other new technologies.

- First, educational coaching considers how hard it is to change how teachers do their jobs. Grossman et al. (2009) point out that teacher practice requires teachers to use their knowledge, skills, sense of self, and ability to build relationships to complete specific tasks in different settings. With the introduction of new technologies like AI, this complexity grows, making it even more important to have expert advice from instructional specialists.
- Also, instructional coaching is widely known and required at different levels to help teachers improve their work. Research has shown that coaching is a good way to help people get better at their jobs, especially in areas like reading and writing (Coburn & Woulfin, 2012). This shows how important it is for instructional specialists to help teachers change their methods to work with new tools.
- In the field of special education, Deussen et al. (2007) explain how response-to-intervention models are put into place with the help of teaching coaching. This shows how instructional specialists might be able to help teachers use AI tools to make learning more personalized for kids with special needs.
- Neufeld and Roper (2003) look at how instructional coaching is used in school-based professional development. They say that instructional experts are a key part of such efforts. They help make sure that new tools, like AI, are used in a way that fits the school's needs for teaching.

- Under the Every Student Succeeds Act of 2015, coaches are urged to work with teachers to create assessments, interpret student data, design and differentiate instruction, give feedback, or evaluate performance. AI has a lot of promise in all of these areas, which makes it even more important for teachers to have help from instructional specialists.
- Coaching is helpful in more than just an abstract way. Empirical study (Kohler, Ezell, & Paluselli, 1999) shows that coaching helps with planning and organizing lessons, teaching students with disabilities, dealing with bad behavior in the classroom, and helping students meet learning goals. Newer research (Cornett & Knight, 2009) shows that coaching leads to better teacher attitudes, skill transfer, feelings of efficacy, and student performance.
- Lastly, coaching is seen as a method for systemic change in large-scale projects. This is because coaching is linked to better student outcomes, which can be measured by standardized tests (Mangin & Dunsmore, 2014). This makes the case even stronger for instructional experts to help schools in grades K–12 use AI.

In short, there are many good reasons to use educational coaching programs to help integrate AI and other technologies. They show how important it is for instructional

specialists to help teachers deal with the complicated parts of their jobs, help them grow as professionals, and help students do better in school.

### **Arguments Against:**

Even though instructional specialists are essential to using AI and other technologies, there are several counterarguments that dispute their need and raise potential issues.

- Hubbard et al. (2006) and Swinnerton (2007) agree that instructional specialists' roles are unclear, and they don't receive enough support. Lack of transparency may reduce their engagement and reduce their chances of receiving the benefits they sought.
- Instructional specialists must also find out how AI and other technology are changing as fast as teachers. Marsh, McCombs, and Martorell (2009) note that these experts must constantly learn and change, which is difficult and costly.
- Effective instructional coaching programs require a coordinated professional development structure with opportunities for ongoing and on-the-job learning. Lord et al. (2008) and Marsh et al. (2008) warn that a comprehensive system like this may be difficult to set up and maintain, straining school and district funds.
- New technologies like AI require more organizational support. Coburn and Russell (2008) and Wei et al. (2009) state that many people must collaborate and



coordinate their professional advancement. Educational institutions may use additional resources and expertise under this rule.

- For successful technological integration, Garet et al. (2001) recommend job-integrated learning settings. Teachers and teaching specialists may struggle to create these experiences, complicating the process.
- Workplace learning assistance and pedagogy require engagement in work tasks, guided learning in practice, and problem-solving scenarios, according to Billett (2002). It's hard to take chances in technology integration's fast-paced, ever-changing world.

In conclusion, instructional professionals are needed to apply AI, however these counterarguments demonstrate another perspective. They demonstrate how challenging it is to ensure instructional professionals can perform well in these deployments. This acknowledgment of potential issues emphasizes the need to plan and manage resources wisely when introducing new tools into education.

### **Analysis of the Validity of Arguments:**

It's crucial to assess the pros and cons of the deployment of tech like AI in K–12 schools with instructional specialists.

On the "for" side, the listed sources show that instructional specialists help tech integration work. They assist teachers grasp new technology, are crucial to school-based professional development (Neufeld & Roper, 2003), and can improve student outcomes (Mangin & Dunsmore, 2014).

The "against" arguments are valid, however instructional specialists still have benefits. The need for a coordinated professional development system (Lord et al., 2008; Marsh et al., 2008), organizational support (Coburn & Russell, 2008; Wei et al., 2009), and continuous learning experiences for teachers and instructional specialists (Garet et al., 2001) are logistical and systemic problems that can be solved with careful planning and resource allocation.

The function of instructional experts may be unclear (Hubbard et al., 2006; Swinnerton, 2007), but this should be considered as an opportunity to clarify responsibilities and standards, not a justification not to use them. Instructional specialists are also learning (Marsh, McCombs, & Martorell, 2009), which helps them comprehend and assist instructors who are learning to use new technologies in their classrooms.

There are legitimate worries, but the case for hiring instructional professionals to help teachers incorporate technology and boost student learning seems stronger. Better teaching skills, technological integration, and student outcomes are promising. The challenges outlined are true, but smart planning, resource allocation, and system

modifications can solve them.

### **Values Emphasized and Compromised:**

Putting AI and other technologies into K–12 classrooms with instructional expertise raises some of education's most fundamental issues and suggests compromises.

Instructional specialists are needed since education is most important. The primary concept is that instructional experts may improve teaching by helping teachers use technology more effortlessly. This aids student learning.

Second, instructional specialists demonstrate the importance of ongoing professional development for teachers. In an ever-changing education system, especially with AI, continuing to learn and adapt is crucial.

Finally, instructional specialists' teaching model emphasizes educators' need to collaborate. Teachers, instructional experts, school authorities, and others must collaborate to integrate new technologies.

But the issues with hiring instructional professionals suggest that some ideals may be lost. These include fair resource distribution. Schools and districts may struggle to provide a thorough professional development framework, ongoing learning opportunities, and organizational support. It's crucial when resources are scarce.

Clear roles in the education system may be harmed by ambiguous instructional expert roles. Any system needs clear job descriptions and accountability.

Another ideal in jeopardy is teacher autonomy, which wasn't emphasized in the justifications. Teachers may feel restricted in the classroom depending on how the instructional expert is viewed and used.

In conclusion, having instructional specialists employ AI and other tools can highlight crucial educational ideals. However, planning and execution are crucial. This would ensure that improving educational performance doesn't harm other values that are just as vital for the school system to work.

**Personal Position:**

After considering the pros and cons and the values emphasized and sacrificed, I'm more likely to support putting instructional specialists in charge of deploying AI and other technologies to help teachers use technology better and improve student learning.

Instructional specialists can improve education by teaching instructors how to use technology. Instructional specialists employ a coaching model that promotes cooperation, support, and ongoing professional development to improve teaching and learning.

Planning and resource allocation can also address the criticisms of teaching specialists. Support, training, and clear roles can overcome expense, lack of competent experts, and opposition to change.

I understand that teaching specialists cannot solve all technological integration issues. However, their guidance and help can improve AI implementations. Instructional specialists can assist teachers use new technology easily, promote a learning culture, and improve teaching practices.

Instructional specialists may also bridge the gap between technology theory and classroom practice. Their engagement might help teachers focus on their most critical work while receiving helpful technical guidance.

In conclusion, instructional experts help teachers use technology better and students learn more. Instructional specialists can help teachers use AI to improve their teaching practices and help more students succeed in a rapidly changing education system by providing advice, professional development, and ongoing support.

### **Suggestions for Problem Solutions:**

Schools should foster collaborative planning and implementation. Instructional experts, instructors, managers, and others participate in this strategy. By making and executing decisions collectively, the school community can experience ownership of technology.

Instructional experts must know their duties to avoid confusion. Precise criteria help educators. This will help them reach their goals and improve guidance.

Prioritize career development. Teachers and instructional specialists need money for frequent training and assistance. This teaches them classroom technologies.

Technology integration demands organization. Supporting instructors, promoting lifelong learning, and organizing professional development are vital. Instructional specialists can help teachers integrate technology.

Reasonable resources help schools integrate technology. Technology should be supplied equally to students and teachers.

Instructional specialists are important, but teachers require professional freedom.

Technology decisions and professional development should involve teachers.

Integrating will motivate teachers.

Examine and improve. Instructional coaching programs, instructional specialists' technology deployment, and student learning should be thoroughly studied. These studies can improve policies and practices, making them more fact-based and effective.

These ideals require commitment, instruments, and evaluation. School districts must invest in professional development, teamwork, equal access, teacher empowerment, and practice-guiding research. These ideas can help instructional professionals integrate AI and change K–12 education in the digital age.

Finally, using the solutions, schools, and districts can solve instructional experts' technology deployment concerns. This complete approach underscores professional growth, teamwork, equal access, teacher empowerment, and research-based decision-making. Strategically using instructional specialists can help K–12 teachers incorporate technology to teach.

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