

The Importance of Planning Intellectually Challenging Tasks

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Abstract

Since the emergence of the 21st century, advances in information, communication, and technology are changing teaching and learning in numerous ways. Today, teachers are essential for this momentum shift. The identification and design of appropriate and effective instructional tasks and applying them in the classroom will affect teaching and learning. However, this goes beyond offering curriculum and teaching materials to educators. Teachers should be able to stimulate passive curriculum materials and transform them into intriguing instructional tasks if they can specify resources, processes, and outcomes. Current literature underscores the need to support teachers in engaging in operational planning activities that allow them to start lessons with mentally stimulating tasks that are proven to encourage more in-depth learning in students. Nonetheless, it is apparent that effective planning of lessons is essential, but its success rests on the application of requisite theories of teaching and learning.

Planning Intellectually Challenging Tasks

Eison (2010) notes that research on lesson planning by teachers began in the 1970s and peaked in the 1990s, but in the past 20 years, it has received less attention. There is a paradigm shift from a focus on teacher behavior during lesson planning to an emphasis on their mental processes (Cole & ASCD, 2008). In the 21st century, planning is increasingly being perceived as a cognitive process where a teacher creates mental images of a teaching plan to guide actions in the classroom environment. This occurrence according to Cole and ASCD (2008) has brought forth the importance of planning especially for intellectually challenging teaching tasks.

Firstly, planning for a challenging task is important because it assists a teacher to design and select learning activities with students, which increases learning outcomes by catering to the varying needs of students in the classroom (Eison, 2010). An instructional activity acts as the central structural unit of planning, which ensures that teaching and learning remain organized and impactful. Secondly, preparing for an intellectually challenging teaching task requires much attention (Stronge, 2007). Usually, a majority of teacher training programs employ a linear model that comprises four main steps namely, identifying goals, choosing learning tasks, consolidating the learning tasks, and specifying various evaluation procedures (Stronge, 2007). Finally, Eison (2010) argues that planning for a challenging teaching task is essential because it allows a teacher to become creative during the delivery of the lesson. By planning, Eison (2010) notes that a teacher can use the contextualized knowledge of learners and their learning needs and preferences to increase the opportunities to learn in the classroom environment.

Theoretical Framework

A study by Kang (2017) supports the importance of planning a challenging task, the study explored precisely how and under what circumstances that preservice science teachers (PSTs) in

secondary schools engaged in proper teacher planning activities that incorporated mentally stimulating tasks into class lessons. By employing a “Situative Perspective” on teacher learning, the author identified eight preservice science teachers' paths of engagement in their communities of practice, which were evaluated with a primary focus on the planning process during learner teaching (Kang, 2017). The data collected included teaching artifacts and method course instructors, mentor teachers’, and PSTs interviews. The findings demonstrated that instructional tasks during the start of teaching lessons were related to the manner PSTs engaged in a three interconnected process of framing instructional objectives and goals, constructing lessons scenarios, and addressing practical problems (Kang, 2017). Moreover, the planning trajectories also demonstrated the contentious, dynamic, and responsive nature of teacher planning for challenging tasks.

Teachers should be able to stimulate passive curriculum materials and transform them into intriguing instructional tasks if they can specify resources, processes, and outcomes. As discussed throughout the paper, there are three primary methods of planning for challenging cognitive tasks based on the existing gaps. Firstly, teachers should be allowed to expand the goals and objectives of teaching instructions to engage learners in disciplinary practices. Secondly, teachers should be supported to attend and respond to students' thoughts through planning for big ideas. Finally, schools should encourage professional and social interactions among teacher because it is considered a high-quality resource for boosting the curriculum outcomes.

The primary foundation for effective planning of a challenging task is the application of appropriate theory, and the "Situative Perspective" proposed by Lipponen, and Kumpulainen (2011) best explains how a teacher can realize this objective. The theory argues that learning of a person in a community is a trajectory, caused by an individual's engagement in the community (Kastberg, 2017). According to Koschmann (2011), it is a path that comprises past and a present, and prospects of participation in the future, and is appropriate for studying preservice science teachers for two main reasons. First, it reveals changes and consistencies in teaching direction because it sees learning as a trajectory. Second, it offers insight into the roles of unique circumstances and contexts as it incorporates numerous communities in examining learning as a process (Kang, 2017).

Intellectually Challenging Science Instruction Tasks

There are two main categories of intellectual challenging science tasks namely high mental and low mental science tasks (Kang, 2017). The former refers to a task with the possibility of improving a learner’s thinking because it invites them to associate an observable phenomenon with a theoretical or non-observable science idea (Scrivener & Underhill, 2012). It prompts a learner to either explain an observable phenomenon by reasoning with science ideas or construct an explanatory model by argument through observation and data. The latter inspires a learner to engage in remembering, recalling, confirming, describing, or reproducing scientific ideas (Kang, 2017). Moreover, it also stimulates a student to practice skills procedurally, and attempt an answer to generic problems without using existing knowledge.

Conclusion

Despite the advances in information, communication, and technology used by educators and the government alike, we need to do more in order to effectively plan intellectually challenging tasks. Teachers in the 21st century are using modern advances in information, technology, and communication to teach students in the classroom. It has been to be successful as the students get intrigued in the passive curriculum. For the last 20 years, lesson planning has been given less focus. A plan assists a teacher to choose and design the learning activities for challenging tasks, which offers positive outcomes in a class as the needs of the students are met. Much attention, however, is required for preparing an intelligently challenging teaching task. For challenging lessons, planning assists the teacher to be more creative during delivery in the lesson.

Intellectually challenging science tasks have two main classes that are low mental and high mental science tasks. Low mental encourages students to describe, recall, confirm, or to reproduce scientific ideas. High mental tasks have the likelihood of improving the learners' reasoning because it uses non-observable or theoretical science ideas.

There are three main methods of planning. To begin with, for students to be engaged in disciplinary practices, the teachers should be allowed to enhance the objectives and goals set. Then support should be given to teachers to respond and attend to students' opinions by planning for big thoughts. Lastly, it is considered a high-quality resource to encourage social and professional interactions between teachers and students while boosting curriculum outcomes. The 'Situative Perspective' theory discloses variations and consistencies in the trajectory of teaching as it defines learning as a path. The approach also offers awareness into the roles of particular situations and contexts as it involves a lot of communities in analyzing learning as a practice.

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