

Curriculum and Instructional Design: Pedagogical Content Knowledge

Posted on: 27 Apr 2020 May 26, 2020 Written by: James Lipuma, PhD., Cristo Leon, MBA. Categorized in: Curriculum and Instructional Design, Education

Introduction

Deliberation was an essential component to effective curriculum so that the careful consideration of a variety of alternative courses of action in specific situations would result in an effective flexible curriculum that met the needs of all learners.

This process required a sophisticated understanding of the existing practices and their effects so that changes that might be made could be implemented in a way to improve and not just change what was being done.

The problem

The connection between the curriculum and instructional design is key but often not fully considered by the groups developing these two distinct parts of the general curriculum and its specific implementation.

CID deals with balancing the needs of the content with the teacher and learner in a given situation. That is paired with the flow of the process within the system in which content is presented in a structured way to allow students to experience activities, receive feedback, and engage with others. Personal values, experiences, and beliefs about what is important in the world contribute greatly to the type of orientation held by the curriculum maker. A teacher's CID orientation is related to her/his philosophy of education, and they both relate to the goals of education, the relative importance of the subject matter, and how teachers and students should interact. There are many different orientations and opinions about the purpose of education and its end.

Historical context

Lee Shulman (1986) claimed that the emphases on teachers subject knowledge and pedagogy were being treated as mutually exclusive domains in research concerned with these domains (Shulman, 1986, p. 6). The practical consequence of such exclusion was the production of teacher education programs in which a focus on either subject matter or pedagogy dominated.

To address this dichotomy, he proposed to consider the necessary relationship between the two by introducing the notion of PCK.

- This knowledge includes knowing what teaching approaches fit the content, and likewise, knowing how elements of the content can be arranged for better teaching.
- This knowledge is different from the knowledge of a disciplinary expert and also from the general pedagogical knowledge shared by teachers across disciplines.

PCK is concerned with the representation and formulation of concepts, pedagogical techniques, and knowledge of what makes concepts difficult or easy to learn, knowledge of students' prior knowledge, and theories of epistemology. It involves knowledge of teaching strategies that incorporate appropriate conceptual representations, to address learner difficulties and misconceptions and foster meaningful understanding. Included in this is the knowledge of what the students bring to the learning situation.

The knowledge that might be either "facilitative or dysfunctional" for the particular learning task at hand.

This knowledge of students includes their strategies, prior conceptions (both "naïve" and instructionally produced); misconceptions students are likely to have about a particular domain, and potential misapplications of prior knowledge. PCK exists at the intersection of content and pedagogy. Thus it does not refer to a simple

consideration of content and pedagogy, together. But rather to an amalgam of content and pedagogy thus enabling the transformation of content into pedagogically powerful forms.

The blend of PCK

PCK represents the blending of content and pedagogy into an understanding of how particular aspects of subject matter are organized, adapted, and represented for instruction.

Having knowledge of subject matter and general pedagogical strategies, though necessary, are not sufficient for capturing the knowledge of good teachers. PCK describes the ability of teachers to access a variety of methods for a diverse set of students so each can master the content and processes of a subject.

At the heart of PCK is the manner in which subject matter is transformed for teaching. This occurs when the teacher interprets the subject matter, finding different ways to represent it and make it accessible to learners.

PCK in CID

Adding PCK as a consideration of curriculum making is a vital step towards the interface of curriculum and instructional design. As diverse groups come together to discuss curriculum, having a clear picture of these aspects will allow for a better curriculum to be developed. Though not everyone needs to know everything, awareness of all of these different aspects can allow a broader and deeper understanding of the elements that impact the process. Moreover, this awareness can yield a curriculum that is more effective for diverse learners and facilitate differentiated instruction for learners by those who will be charged with implementing it. In addition, the resulting curriculum will be more aligned with the goals and objectives leading to outcomes that will be more easily assessed. In addition, this specification can allow for better alignment with standards and provide data for effective evaluation and improvement.

Collaborative CID

Extending this basic argument; the interface between the curriculum and instructional design must also be an integrated process of collaboration or vision of shared thinking. By asking teams to collaborate or individuals to consider all levels of CID, the process becomes more holistic and inclusive. PCK connects to CID as informed decisions lead to constructively aligned designs.

Additional Resources

Bibliography

Shulman, L. S. (1986). Those Who Understand: Knowledge Growth in Teaching. *Educational Researcher*, 15(2), 4-14. <https://doi.org/10.3102/0013189X015002004> (<https://doi.org/10.3102/0013189X015002004>)

Related resources

FAQs for Curriculum Orientations: <http://schoolteachersparents.wikidot.com/analysis:curorient>
(<http://schoolteachersparents.wikidot.com/analysis:curorient>)

Citation

If you want to cite this blog article, please use the following:

Lipuma, J., & Leon, C. (2020, April 27). Curriculum and Instructional Design: Pedagogical Content Knowledge [Blog]. *James Lipuma's Blog*. <https://www.jameslipuma.com/curriculum-and-instructional-design-pedagogical-content-knowledge/>

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