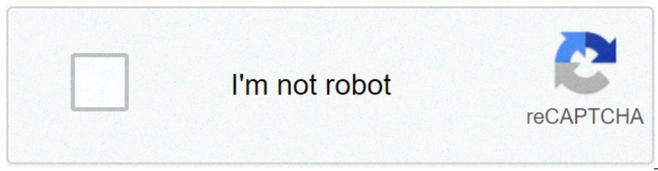

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Spiral curriculum theory bruner

The People of Evidence In response to the popularity of our TLA research summary on Lev Vygotsky, we decided to present the work and contemporary relevance of another influential educational thinker - Jerome Bruner (1915-). Bruner contributed enormously to our understanding of the educational process. As a professor of psychology at Harvard, he was particularly interested in children's cognitive development and what appropriate forms of education they could be. His landmark text, The Process of Education (1960), revealed his particular view of constructivism - the theory that students actively build their own knowledge based on the things they now know and have known in the past. Bruner's view of teaching and learning was influenced by studies conducted by other American psychologists, who began to show a shift in emphasis - from exploring the transfer of specific skills to exploiting the value gained from the formation of such faculties as analysis, judgment, and memory. His studies showed that general transference could be achieved by proper learning, even to the extent that learning itself led to learn to learn. Bruner argued that to allow the transfer of thought processes from one context to another, children needed to learn the fundamental principles of the subjects, rather than just mastering the facts. He advocated learning through inquiry, with the teacher guiding to accelerate children's thinking, and recommended that early teaching of any subject should emphasize the apprehension of basic ideas intuitively. After that, he believed, the curriculum should revisit these basic ideas, repeatedly building on them until the student fully understands them (the spiraling curriculum). Bruner commented in his preface to the revised edition in 1977 that his vision of teaching and learning was out of step with the dominant view in education at the time his book was first published. But it struck a chord with many and had a direct impact on policy-making in the United States. Today, constructivism is widely considered an important model of effective teaching practice, and Bruner's ideas are behind many contemporary approaches and practices, such as thinking and evaluation skills for learning. Bruner organized his ideas in the Education Process into four key themes: the role of the structure in learning and how it can be central in teaching readiness to learn intuitive and analytical reasons for learning. In this summary, we explore the teaching and learning ideas Bruner presented nearly half a century ago and draw messages for current teachers and leaders. The case studies we have chosen show the applicability of bruner in today's school environments. We think practitioners will find exploring the theory that underpins the effective classroom effective it makes a useful basis for professional development, providing a focus for reflection and action. The spiral curriculum, a concept widely attributed to Jerome Bruner [1], refers to a curriculum design in which key concepts are presented repeatedly throughout the curriculum, but with in-depth layers of complexity, or in different applications. Such treatment allows for the previous introduction of concepts traditionally reserved for more later and specialized courses in the curriculum, after students mastered some fundamental principles that are often very theoretical and prone to discourage students who are eager to apply the concepts they are learning to real-world applications. How does this method help the student? In recent years, Detroit Mercy's Electrical & Computer Engineering (ECE) program has designed and implemented a spiral curriculum built on a robotics theme. In the first semester at the university, all engineering students complete a hand robotics project that introduces mechatronics-related concepts. As EEC students advance through the integrated curriculum, they complete more complex robotics projects and participate in courses that are tightly integrated with each other. How Figure X works: Spiral Electrical Engineering Curriculum Figure X represents the spiral structure of the curriculum, showing how traditionally disparate topical areas are treated in an integrated manner in the two fundamentals courses (Fund I and Fund II). After Fund I, students begin to experience close integration between courses. For example, projects shared in Fund II, Signals and Systems and Digital Logic have been a consistent feature in the four years since the curriculum was released. Signals and Systems introduces concepts related to control and communication systems that are subsequently reinforced in two separate courses. The Advanced Electronic Systems course continues integration with shared projects with the Microprocessors course. All of this prepares students to think of EE design as a system integration problem, rather than simply a collection of unrelated component designs that are never assembled in a larger context. [1] J. S. Bruner, The Education Process. Cambridge, MA: Harvard University Press. Download full text Number: ED538282 Record type: Non-JournalPublication Date: 2012-MarPages: 2Abstract: ERICISBN: N/AISSN: N/AThe Spiral Curriculum. Research on PracticeJohnston, HowardEducation Partnerships, Inc.The Spiral Curriculum is based on advanced cognitive theory by Jerome Bruner (1960), who wrote: We begin with the hypothesis that any subject can be taught in some intellectually honest way to any child at any stage of development. That is, the most complex material, if properly structured and presented, can be understood by very young children. Key Key Bruner's work-based spiral curriculum are: (1) The student revisits a theme, theme, or subject several times throughout his or her school career; (2) The complexity of the theme or theme increases with each revisit; and (3) The new learning has a relationship with the old learning and is put into context with the old information. The benefits attributed to the spiral curriculum by its advocates are: (1) The information is reinforced and solidified each time the student revisits the subject; (2) The spiral curriculum also allows a logical progression from simplistic ideas to complicated ideas; and (3) Students are encouraged to apply early knowledge to the subsequent objectives of the course. Although there is no clear empirical evidence of the overall effects of the spiral curriculum on student learning, characteristics of this curriculum have been linked to better learning outcomes. In addition, the spiral curriculum incorporates many research-based approaches, from cognitive science that have been linked individually to better student performance as well. Education Partnerships, Inc. Site: Bruner's spiral curriculum is an approach to education that involves regularly visiting the same educational topics throughout a student's training. Each time the content is reflown, the student gains deeper knowledge on the topic. It has the benefits of reinforcing information over time and using prior knowledge to inform future learning. What is the Spiral Curriculum? The spiral curriculum is defined as a curriculum that returns to the same topics over time. It is juxtawaged to methods that involve learning something and moving forward, perhaps never to engage with it again. When students reengage with a topic over and over again, both consolidate prior knowledge in their memory and rely on it over time.3 Key principlesThe spiraling approach to the curriculum has three fundamental principles that sum up the approach well. The three principles are: Cyclical: Students must return to the same theme several times throughout their school career; Increasing depth: Each time a student returns to the topic, it must be learned on a deeper level and explore more complexity; Prior knowledge: A student's prior knowledge should be used when a topic is returned for him to build from his foundations instead of starting over. Origins of the ApproachThe teaching strategy was developed by cognitive theorist Jerome Bruner in 1960. Bruner reflected on the fact that many teachers implicitly use this method. However, Bruner documented the approach and its great value to curriculum designers and ultimately for student learning. Here's Bruner's remark in his own words: I stayed with the fact that successful efforts to teach highly structured bodies of knowledge like mathematics, physical sciences and even the field of history often the form of a metamorphic spiral in which, on some simple level, a set of ideas or operations were introduced in a very intuitive way and, once dominated in this spirit, were then revisited and reconstructed in a more formal or operational way, then being connected with other knowledge, the domain at this stage being then taken one step up to a new level of formal or operational rigor and to a broader level of abstraction and integrality. The final state of this process was the eventual mastery of connexity and structure of a large body of knowledge... (Bruner, 1960, p. 141). Academic definitionsStudents have defined Bruner's approach in the following ways: Harden and Stamper (1999, p. 141) state that it involves an itenative revisit of topics, subjects, or topics throughout the course. Lohani et al. (2005, p. 1) provide this explanation: Bruner argues that a curriculum as it develops should revisit basic ideas over and over again, restraining them until the student has seized the complete formal device that goes with themHoward (2007, p. 1) defines it this way: [In the curriculum] fundamental ideas, once identified, must be constantly revisited and re-examined so that understanding deepens over timeHow to Design a Curriculum using the Spiral ApproachTo design a curriculum using a curriculum using a spiral approach, you need to create units of work that:Increase complexity; eStart outside of where the previous drive ended. The spiral approach to curriculum design reminds us that courses are not singular units of work. Each course or unit of work we cover is based on something previously. This approach forces us to work with our colleagues who have been a child's teacher in a previous year or years to develop a cohesive approach to teaching. A group of educators can, for example, use a tool such as Bloom Taxonomy to achieve learning outcomes at different stages of a course. Educators would develop learning outcomes that have increasing levels of complexity. In the first course, a student only needs to demonstrate 'understanding' of the topic. In the next iteration, students may need to 'criticize' or 'analyze'. In the final iteration, students may need to 'create' something from scratch. This approach is extremely common in university courses, where freshman courses provide fundamental knowledge, and complexity increases from there. In the end, a student may need to create a capstone project or dissertation that demonstrates the highest form of learning: to create something new. Examples in classroomMathematicsIn mathematics often come back to the same content multiple times, but we add complexity each time. For example, your teacher can first cover simple fractions, then more and then start making it add and subtract fractions. Instead of focusing on for a whole year, your school will spread fraction classes over many years. Each time you return to fractions, your teacher will evaluate how well you have withheld previous information and then help you build on this prior knowledge. Literacy In literacy, we will often use the spiral approach to increase our vocabulary, grammar, knowledge of literary themes and critical thinking. Teachers and librarians often give students books, for example, that will increase in difficulty and length one after another. Students need to follow the sequence to build confidence and reading skills. Similarly, a student can first learn about nouns before adjectives and verbs before adverbs. This is because the knowledge of adjectives requires prior knowledge of nouns and the knowledge of adverbs requires prior knowledge of verbs. Languages Education In language education, we teach in very clear structures: A1, A2 (beginner), B1, B2 (intermediate) and C1, C2 (advanced). A student cannot simply start at B1, as the teacher will return to the grammar and vocabulary concepts addressed in the A2 courses with the expectation that students will be at least familiar with them. Often, the student will fight for a short period of time over the information that is reintroduced, but is expected to be able to pick it up again quickly because it has been taught in the past. This reinforces the importance of review classes before the start of higher-level content. Advantages and Disadvantages of the Bruner Spiral Curriculum1. Appropriate development learning1. Time consuming for designers2. Prior Knowledge is Central to Learning2. The curriculum is crowded3. Spaced Repetition Occurs3. Irrelevant for short courses4. eachers Focus on structuring work to follow logical progression4. You run the risk of becoming a centered teacher5. Integration and Collaboration Occur5. Teachers re-debut in repeated content and againAdvantagesAppropriate Development: Often, we will challenge a student to the greatest extent of their current skills. Once we have gone as far as we can go, we may have to wait a few months or even a year until their mind has developed a little further and they are better able to deal with the topic. When you return to the topic, the student may be at an appropriate development level to understand the topic further. This advantage is based on the cognitive constructivist premise that brains develop as we age, often at different stages (in relation to Piaget's stage theory). Prior knowledge is Central to Learning: This approach necessarily employs the notion of 'prior knowledge'. This concept recognizes that students enter a classroom with learning history and knowing that they can be used in classroom practice. By evaluating prior knowledge and using it in the classroom, we can move towards a teaching style. Spaced Repetition Occurs: Spaced repetition is a concept of behavioralist theory of learning. It explains how knowledge compromise scans with memory occurs best when you take the practice of a task over time. Every time you get involved with the concept, you have to remember it from your memory. Like exercising a muscle, the more you exercise this little memory pack, the stronger it gets and the less likely you are to forget. Teachers focus on structuring work to keep up with Logical Progression: When developing this type of curriculum, educators and curriculum designers need to pause and reflect on what it takes to learn something. This explicit reflection on the progression of understanding places continuous growth at the center of the student's learning experience. Integration and Collaboration: Educators collaborate to ensure that a holistic and coherent learning sequence is delivered over time. Time Consuming Disadvantages for Designers: Curriculum designers need to collaborate and coordinate for this model to work. Designers and educators need to meet throughout several meetings to agree on what will be taught, when and by whom, so that the entire curriculum is cohesive and does not miss anything or contains redundancies. Curriculum Crowding: If educators have a lot to teach and then resusam, the curriculum can get very crowded. Educators can lightly touch on a concept and move on with the belief that we will return to it. A better alternative may be domain teaching, where a student does not move on until mastering the topic. Irrelevant to Short Courses: Short courses can return to content in individual classes, but long-term reinforcement is impossible if a course is taught only for a short period of time. Risk of becoming a centered teacher: When the curriculum is projected longitudinally with a long horizon, teachers make assumptions about a student's level of competence at certain times in the future. A flexible curriculum needs to be differentiated for a student's learning levels and speeds, which can be unattainable if the curriculum is designed well in advance. Filling in gaps: Often, a teacher will find that instead of relying on prior knowledge, they are reindusing information that has been forgotten, taught poorly previously, the facts have changed or imply many misconceptions. The 'Strand Curriculum' alternative An important issue with the spiral approach to curriculum design is that it involves 'entanglement' of content into blocks of topics. A topic will be approached intensely for a short period of time and then dropped only to be picked up again at a later date. alternatively, the strand curriculum, aims to integrate multiple topics in each class, every day, in order to work slowly, but consistently, on topics over a long period of time. This can prevent memory loss impulse loss that occurs when topics are left alone entirely for a period of time. Snider (2004, p. 34) states:[In a strand curriculum] each lesson is organized around multiple skills or topics, rather than around a single skill or topic. Each skill/topic is covered for only 5 to 10 minutes in any day lesson, but is revisited day after day for many lessons. Final Thoughts Jerry Bruner's spiral curriculum approach highlights the importance of reengaging with ideas over time in order to keep them fresh in our minds and consistently build ideas. It is based on the three principles of: (1) Cyclic Learning, (2) Increasing Depth in each Iteration and (3) Learning through prior knowledge. The approach also highlights the open nature of learning. In other words, it shows how learning is an endless lifelong process. While widely accepted as an appropriate approach to long-term school curriculum design, its limitations include the risk that the curriculum becomes too rigid and crowded, and that educators will have to focus on re-sornating content that was not taught well enough (or was forgotten) the last time the topic was taught. ReferencesHarden, R., and Stamper, N. (1999). What is a spiraling approach to the curriculum? Professor of Medicine, 21(2): 141-143.Howard, J. (2007). Curricular Development. Elon University: Center for the Advancement of Teaching and Learning. Lohani, V. K., Mallikarjunan, K., Wolfe, M. L., Wildman, T., Connor, J., Muffo, J., ... & Chang, M. (2005, October). 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