(re)Visioning the Gradual Release of Responsibility: Building a Student Interdependency Model

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Abstract

Traditional models of learning stop short of explaining the extent to which deep learning occurs in present-day classrooms. The (re)Visioned Gradual Release of Responsibility (GRR) illustrates four strands explaining student engagement in learning: goal development, problem analysis, reciprocal inquiry, and generative problem-solving resulting in student "Interdependence." The (re)Vision is grounded in theoretical underpinnings of "zone of proximal development" and "scaffolded instruction," and modernizes the original GRR conceptual framework. The (re)Vision applies to academic curriculum and social and emotional aspects of child development and learning. "Interdependence" is achieved through deep content learning, increased levels of social interaction, and high cognitive engagement.

Keywords: Collaborative Learning, Explicit Modeling, Focused Instruction, Generative Problem Solving, Goal Development, Gradual Release of Responsibility, GRR, Guided Practice, Guided Instruction, Independency, Independent Learning, Interdependency, Instructional Scaffolding, Problem Analysis, (re)Visioning, Reciprocal Inquiry, Shared Demonstration, Zone of Proximal Development

Introduction

Throughout the United States of America, teachers actively guide students through learning opportunities that result in mastery of a skill of concept. Students are then asked to demonstrate learning through what has historically been acknowledged as "independent learning." Students, on their own, show evidence of the learning by remembering facts, or implementing steps or processes within a given content area. Does this really constitute learning? Does learning need to cease at a stage where students are merely demonstrating they can complete a task independently? Can students achieve deeper learning through thoughtfully implemented instruction that incorporates cognitive and intrapersonal learning activities? These questions form the basis for a (re)Visioned approach to a well-known instructional framework (existing for almost 40 years), identified as the Gradual Release of Responsibility (GRR) (Pearson and Gallagher, 1983).

The original GRR instructional framework was a foundational turning point in education that emphasized an end result of students becoming independent learners. Fisher and Frey (2013) expanded their early thinking to include descriptors that more specifically identified teacher responsibility versus student responsibility. Adjacent to each descriptive column indicating the level of responsibility, labels such as "I do it", We do it", "You do it together", and "You do it alone", were applied. Again, Fisher and Frey's (2013) model ended in a quest for students to demonstrate independent learning.

Rather, we believe that students can and should acquire deeper learning that does not end with merely being independent learners. According to Pellegrino (2015),

Deeper learning can be understood as the process through which a person becomes capable of taking what was learned in one situation and applying it to new situations--in other words, learning for transfer. Through deeper learning, individuals acquire expertise in a discipline or subject area that goes beyond the rote memorization of facts or procedures; they understand when, how, and why to apply what they have learned (p. xvi).

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As a result, we have conceptualized a (re)Visioned interdependency model of the GRR emphasizing the collaborative impacts of contemporary student learning. We operationally define contemporary student learning to include project-based learning (PBL) experiences and "flipped" classrooms, as well as student-driven experiences such as "hackathons" and EdCamps resulting in high levels of engagement and mastery. Project-based learning, for example, has re-emerged in the past decade as a pedagogical approach resulting in high-levels of collaborative learning and student inquiry (Krajcik & Shin, 2015). Similarly, teachers design hackathon experiences for students to innovate and problem-solve as a team (Kienzler & Fontanesi, 2017). Both PBL and hackathons result in a public presentation of students' collaborative work. Thus, the field of education requires a new conceptual framework to explain contemporary learning experiences.

Purpose

Our experience and extensive classroom observations have provided evidence to suggest that the GRR model stops short of explaining the extent to which learning occurs in present-day classrooms. That is to say, teachers have transitioned *from* being "sages on the stage" professing their knowledge to students *to* "facilitators of learning." Learners have transitioned *from* recipients of a teacher's knowledge to students that critically engage in analytical thought and peer collaboration. Certainly, we want students to be able to show mastery that is independent of the teacher. Even more so, we believe that interdependency--a reliance on one another in a classroom community--is paramount to the inquiry process resulting in deeper learning. We believe that true interdependent learners are required for the success of our society. According to McNulty (2011), "We are confused about the aim of education. The aim of education is really not to make our kids successful in school; it is to make the lives they lead successful outside of school." In an age where problem-solving and collaboration are vital to college, career, and societal effectiveness, a learning model focused on interdependency must exist for educators. Teachers must have a framework to explain contemporary learning and support their students toward achieving interdependency.

Review of the Literature

Theoretical Grounding

Grounded in the tenets of Lev Vygotsky's (1978) theory of "zones of proximal development"and Wood, Bruner, and Ross' work (1976) on "scaffolded instruction," the (re)Vised model of gradual release of responsibility conceptualizes the extension of teacher and student interaction from ending with a student's "independent learning" to the student's demonstration of "interdependence." The (re)Vision posits that student interdependence is the end result of instructional scaffolding within the zone of proximal development, leading to high levels of engagement, increased social and emotional capacity, and deep content learning. Collectively, these theories suggest that learning occurs best through interactions with others, and when these same interactions occur intentionally and in a purposeful manner, specificity in learning happens.

Zone of Proximal Development

Lev Vygotsky (1896-1934) contributed seminal research and theory in cognitive development over the past several decades, particularly relative to Social Development Theory. According to Vygotsky (1978), through his Social Development Theory, much important learning by the child occurs through social interaction with a more knowledgeable other (MKO) along with Vygotsky's theory of Zone of Proximal Development (ZPD). The MKO demonstrates behaviors and/or provides direct instruction (Explicit Modeling) for the child. Vygotsky refers to this as a collaborative dialogue. The child seeks to understand the actions or instructions provided by the MKO providing the instruction then uses the information to guide their own performance toward achievement of the new learning. Although, Vygotsky believed that young children are actively involved in their own learning and the constant discovery of new learning or understanding.Vygotsky's theories emphasized the foundational role of social interaction as a means for the development of cognitive learning (growing the brain) all while doing so in a social interactive way that promotes community and collaboration among people.

Shaffer (1996) gives the example of a young girl who is given her first jigsaw. Alone, she cannot perform the basic steps required to solve the puzzle. The father then sits with her and describes or demonstrates some basic strategies (focused instruction), such as finding all the corner/edge pieces and provides a couple of pieces for the child to put together herself and offers encouragement, as she replicates the instruction offered. As the child becomes more competent, the father allows the child to work more independently (collaborative and independent learning). According to Vygotsky, this type of social interaction capturing collaborative dialogue promotes cognitive development and independence in learning a task.

The above example clearly illustrates scaffolding and a focus on gradually releasing responsibility to the child after the supports are provided. The child can (only after clear instruction and opportunities for practice) solve the puzzle. This is an important concept that relates to the difference between what a child can achieve independently versus what a child can achieve with guidance and encouragement from a skilled partner.

The child could not apply knowledge to solving the jigsaw puzzle by herself but was able to achieve a solution after a collaborative dialogue with her father. As a result of this instructional scaffold, the child has now developed the competence to solve other puzzles that require more complex reasoning skills and has developed a competence that can be applied to future jigsaws.

Likewise, Mooney (2013) suggests that teachers who want to apply Vygotsky ZPD approach at a very early primary level, should first make careful observations of the child, create planful curriculum that addresses the current abilities of the child, and then pair children together so that reciprocal learning can happen.

Teachers need to develop the skills of observing, questioning and encouraging peer interactions that will best support children's growth and development. They need to think about when to step in with suggestions or ideas and when to let the children proceed on their own (p. 108).

Instructional Scaffolding

Instructional scaffolding is a term that is associated with the Zone of Proximal Development (ZPD): the difference between what a student can do with direct assistance and what he/she can do without help (Vygotsky, 1978). Instructional scaffolding the process by which students receive support until they can apply the new skill or strategy independently (Rosenshine and Meister, 1992). Lange explains instructional scaffolding as the development of instructional plans to lead students from what they already know to a deep understanding of new material. The teacher provides support for the students at every step of the learning process (as cited in Lipscomb, Swanson, and West, 2004, p. 6). According to Echevarria, Vogt, and Short (2004) scaffolding supports learners to carry out tasks successfully, is specialized help that assists learners to move toward mastery of concepts, and is based on the idea of what a student can do with support today and what the student can do alone tomorrow. "When you incorporate scaffolding in the classroom, you become more of a mentor and facilitator of knowledge rather than the dominant content expert. This teaching style provides the incentive for students to take a more active role in their own learning" (Faculty Development and Instructional Design Center, 2008, para. 2).

Furthermore, Wood et al. (1976) posit how teacher-designed instruction is most beneficial for students just beyond their independent capabilities. Specifically, content should not be too easy nor too difficult, and the focus should be the development of new skills by extending ones that have already been established. "Task[s] that are initially beyond the learner's capability...permit him to concentrate upon and complete only those elements that are within his range of competence" (p. 90). Although independent learning is the goal for every student, the ZPD is an overarching concept that helps educators understand the entry point for supporting learners in their understanding of new concepts.

Gradual Release of Responsibility

The (re)Vised conceptual framework modernizes and extends Pearson and Gallagher's (1983) first conceptualization of Gradual Release of Responsibility (GRR), which suggests that classroom task performance shifts from the teacher to the student.

**Figure 1. Proportion of Responsibility for Task Completion**
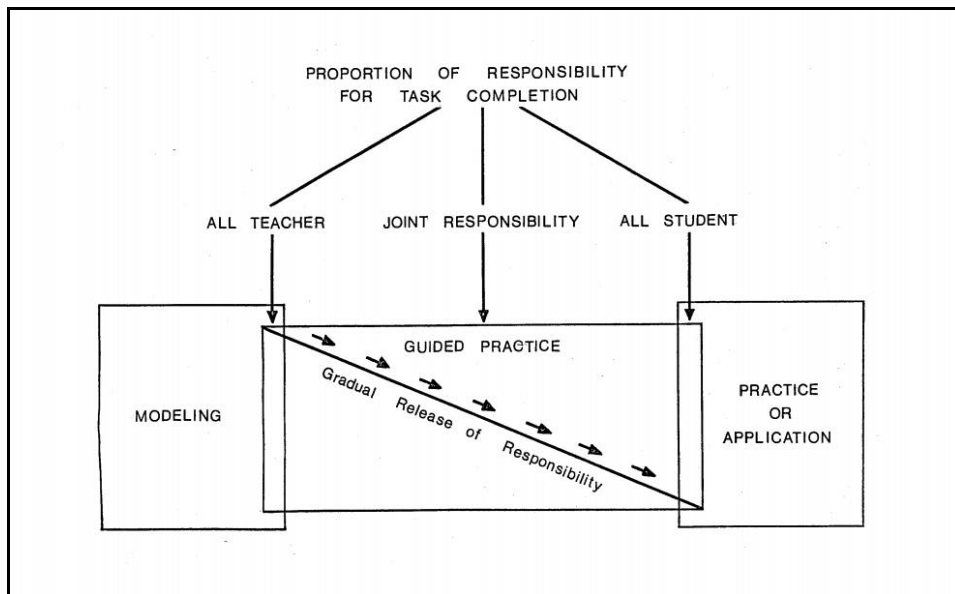
Pearson & Gallagher (1983)

The GRR Instruction Framework

Frey and Fisher (2013) provide a teacher-focused instructional framework of GRR applied to multiple content areas. The GRR Instructional Framework suggests a four strand system to include: focused instruction, guided instruction, collaborative learning and independent learning. This four strand model is divided into two sections of responsibility: Teacher responsibility and student responsibility as represented by a downward diagonal line. We interpret the diagonal line as the percentage by which the teacher or student is responsible for the workload. As the students progress across the strands from focused instruction to independent learning; increased levels of responsibility are incurred by the student (from zero-10 percent to 90-100 percent). Similarly, as the teacher progresses from focused instruction further along to supporting independent learning, his or her responsibility decreases (from 100-90 percent to 10-zero percent). Specifically, each strand description is identified for both the teacher and student responsibilities as described below.

Figure 2. Gradual Release of Responsibility
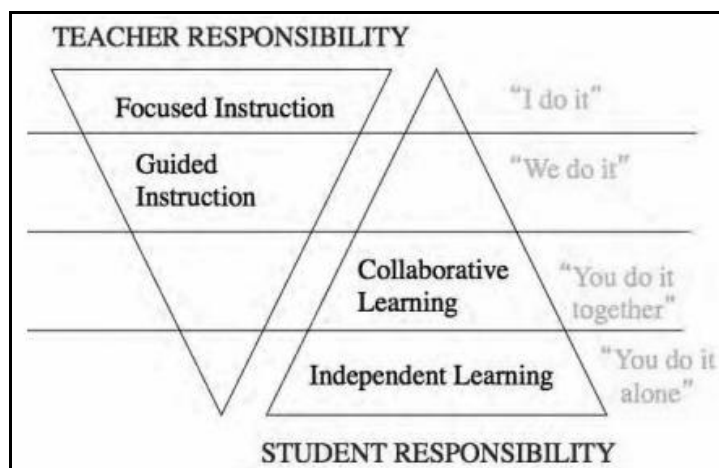
Fisher and Frey (2013)

Focused Instruction

The level of teacher responsibility in the "Focused Instruction" strand is 100-90 percent compared to the student responsibility in this same strand is equivalent to zero-10 percent. During the "I do it" strand, the teacher is thinking out loud and providing direct/procedural instruction of a new concept or skill. The teacher is explaining the procedure of the new learning and demonstrating using various tools such as a note taking device or use of hands-on manipulatives that will aid in students understanding the new concept,

(90 percent of the responsibility). Student activity during this strand are typically observing the teacher, writing down notes, or asking clarifying questions as they progress through the strand, (10 percent of the responsibility).

Guided Instruction

The level of teacher responsibility in the "Guided Instruction" strand is 60 percent compared to the student responsibility equivalent to 40 percent. In this strand, the student then takes on greater responsibility for the learning as opposed to the teacher. However, within the Guided Instruction strand, the teacher and students work side by side and interact closely to understand the new learning. For example, a teacher may pose a question for students to connect with their own current understanding or experience. The teacher may provide specific scaffolds or provide clues to keep students on the correct path of learning. The students are more active during this phase of learning. Perhaps they are using hands-on manipulatives in close proximity and guidance to the teacher. The emphasis here is the teacher is releasing some of the responsibility for active learning to the students. Additionally, shared demonstration allows students to see themselves as teacher-learners for the first time in this process, as a peer or peers volunteer to instruct alongside the teacher.

Collaborative Learning

Students take on a majority of the responsibility of the learning (60 percent) versus 40 percent teacher responsibility in the Collaborative Learning strand. Here the focus is on the student engaging with peers collaboratively. Much of the work is completed individually or in small groups with the intentional assistance of the teacher as the student practices the use of the new concept or skill. As appropriate, the teacher in this strand provides strategic questioning that requires student dialogue and deeper intellectual inquiry (Fisher, 2013). The teacher uses focused observation and formative assessments to check for student understanding to ensure progress toward mastery.

Independent Learning

The last strand, "Independent Learning," is primarily led by the student (90-100 percent) and the teacher takes on 10-zero percent of the responsibility in this strand. This strand allows the student to showcase their ability to independently apply the knowledge learned. This is typically displayed by informal assessments, formal testing, individual tasks, or group related collaborations.

Independent learning--as illustrated by Bloom's (2006) Conceptual Development model relative to inquiry in science curriculum--aligns with our (re)Visioned framework for the Gradual Release of Responsibility.

Figure 3. Conceptual Development Model

EXPLR = exploring   QUEST = questioning   INV = investigating   EXPLN = explaining
Bloom (2006)
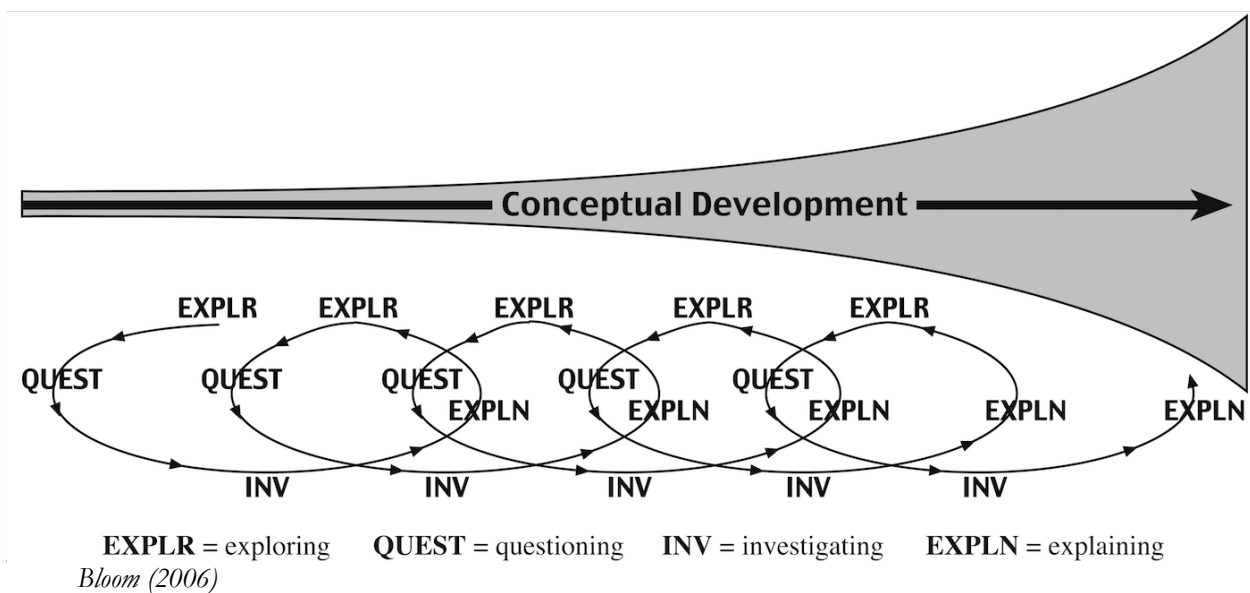
In his model, Bloom highlights the importance of an inquiry cycle emphasizing four components: Exploring, Questioning, Investigating, and Explaining. These cycles operate effectively from an independent learner perspective and establishes a focus on "working together." That is, students engage in interdependency within the classroom that will ultimately be presented to an audience.

Our (re)Visioned model places the same emphasis on interdependency; students talk to one another to determine the next steps to breaking apart a problem, analyze its parts, and determine reasonable pathways to solve a problem. There is an abundance of research that suggests that irrespective of the subject matter or content being learned, students learn and retain more information for longer periods of time when they learn in small, collaborative group settings (Dean et.al, 2012).

Further, these interactive groups, as a result of earlier strands, have a focus on gathering appropriate academic language and then accurately using the language within the team interactions among class peers. During this process, it is important to note, the teacher (at the right time) steps in and out of these dialogues to engage learners in thinking more deeply. All the while, these deeper conversations sharpen the ability to develop a metacognitive learning approach happening within the constructs of the group of learners.

Teachers who embed opportunities for student talk make clear their stance to utilize inquiry for deep learning and student-led connections. One way to undertake inquiry is for *students* to develop and conduct experimentations, as seen toward the right side of the Figure. Here, students are doing the "heavy lifting" of investigating, questioning, exploring answers to their questions, and then further unfolding answers to a central problem; all in an effort to find a solution. Frequently, these inquiry opportunities are all around us to transfer classroom learning to real-life problems or situations.

Bloom's "Conceptual Development" framework illustrates the increase of complex learning within science curriculum--see Figure 3 above. As students progress from left to right relative to the horizontal funnel, authentic learning is realized through exploring, questioning, investigating, and explaining.

Bloom offers an explanation of knowledge transfer by providing an example of a car accident outside of a school. What surfaces from the car accident is an enormous inquiry opportunity for students to generate questions about the accident, the conditions that preceded the accident, possible antecedents that caused obstruction to the driver, and, once an interdependent investigation is finished, an explanation to others about the findings. As a collection of findings or solutions are realized by the collaborative group, the opportunity to share their findings is critical. Knowing that each member of the group is essential to finding the solution, students should all be provided the time to participate in sharing the solutions and pathways for achieving their resolve. Frequently, these authentic experiences--perhaps better described as performance assessments--result in whole-class discussions where further questions are uncovered and new perspectives are reached. The resulting dialogue allows everyone in the learning space to learn from one another. Effective teachers design authentic learning experiences that result in collaborative and investigative work, where students are responsible for producing and reporting findings from these inquiry-based opportunities.

Related, the National Association of Colleges and Employers' (NACE) (2020) annual survey reports essential skills that are most important in various fields of work. Longitudinal data suggests consistency of employers requiring people to be problem-solvers, effective communicators, collaborators on teams, and people who are innovative thinkers. Career and societal demands require individuals to solve complex issues that will benefit the greater good--an observable example of knowledge transfer from the classroom to the real world. Indeed, Bloom's explanation above holds true if educators support and cultivate learners who are ready for the career demands present in today's trades or professions.

Conceptual Framework

Overview

We understand that not every student's experience is explained by our proposed (re)Vision of the GRR described below. Rather, we provide the new conceptual framework to explain the richly diverse educational experiences observed in classrooms in our region and throughout the world in today's schools. The key point that differentiates the new conceptual framework from the GRR is a shift from resulting in independent learning to a focus on interdependent learning. Indeed, the previous model described the gradual release of responsibility from a teacher to his or her students resulting in 90% responsibility for students and 10% for the teacher. At the conclusion of the previous model, Fisher and Frey (2013) labeled students as "independent learners." The essential outcome of our conceptual framework is the observed behavior of "interdependency" at the end of the learning experience. We operationally define interdependency as *the ability for an individual to interconnect their own thinking with the thinking of others in a mutually collaborative way.* More specifically, we posit four specific strands that illustrate the process by which students engage in interdependent learning: goal development; problem analysis, reciprocal inquiry; and generative problem solving.

Figure 4. (re)Visioned Gradual Release of Responsibility
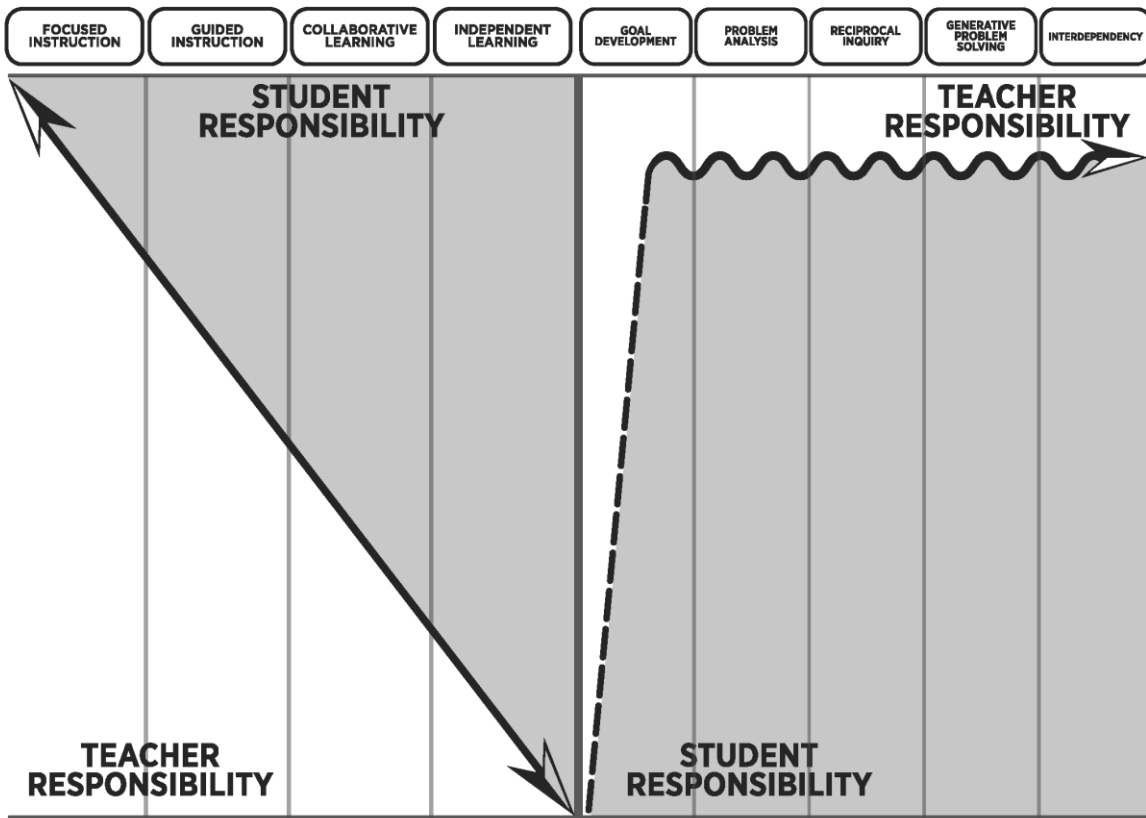
Our (re)Visioned framework to Fisher and Frey's (2013) model solidifies a foundational component of interdependency. That is, after a student has progressed through the guided instruction and collaborative learning phases with the teacher, students demonstrate mastery in the independent learning strand as an individual. The central focus of our (re)Visioned conceptual framework is the emergence of interdependency of students, wherein the teacher creates collaborative teams of classmates to determine a goal, identify a unified problem, dissect the problem and analyze it from different angles, and productively struggle with reasonable solutions/consensus for solving the problem. According to Costa and Garmston (2002), the essential components of interdependence include: contributing to the common good; participating with and learning from others; developing capacity in interacting with others; seeking collegiality and collaboration; and balancing self needs and group needs (Cognitive Coaching workbook, p. 24). Below are the (re)Visioned strands and definitions, focused on interdependency, that build on Fisher & Frey's 2013 model:

Independent Learning: The ability for an individual to apply learning by oneself.

Goal Development: The process by which interdependent learners establish a plan for acquiring knowledge, skills, or experiential outcomes during the learning continuum.

Problem Analysis: The process by which interdependent learners investigate, analyze, and unpack key components of an issue.

Generative Problem Solving: The active construction of new learning to formulate incremental steps toward a resolve.

Reciprocal Inquiry: The process by which dialogue and interactive questioning between interdependent learners generates a deeper understanding of a problem.

Interdependency: The ability for an individual to interconnect their own thinking with the thinking of others in a mutually collaborative way.

To begin, we have intentionally used "(re)" in the title to identify our utilization of the "backward design" process to create our new conception of explaining engaging pedagogies in contemporary classrooms. We believe that the original GRR is still a requisite approach to effective instruction; thus maintained in the title. Our conception, again, is to extend this effective instructional strategy to 21st Century skills and workforce.

At the beginning of the (re)Visioned model in Figure 4 a diagonal dashed line exists to transition from Independent Learning to Goal Development. The dashed line illustrates how a teacher intermittently provides support based on interdependent need as demonstrated by the student teams. Then, an uneven, horizontal line across all strands indicates teacher movement in and out of interdependent conversations for support when and if the teacher is needed; about 10-to-15 percent of the interdependent learning opportunity. The teacher utilizes proximity and awareness with a focus on student perspectives to ask deep content questions. Additionally, students must be encouraged to "grapple" with the topic and productively struggle through the learning process toward interdependency. Students' collaborative exchange of thoughts, ideas, solutions, and questions carves a stronger understanding of the learning and sets up the learner for independent mastery of the concept or skill. The (re)Vised conceptual framework focuses on student engagement not only with academic curriculum, but with social and emotional aspects of child development and learning in which we label as student "interdependence."

Implications

According to Kohn (1992), "In a classroom where members have come to feel part of a community and who have been helped to develop a range of social skills, disagreement can occur without debate, and conflict without competition." (p. 201). Based upon our strong belief in truly collaborative learning environments, we find it necessary to provide specific examples for the application of our (re)Visioned Gradual Release of Responsibility conceptual framework. Below we apply the (re)Vision to vignettes situated in different grade levels and with different content areas to illustrate and justify the conceptual framework. Each vignette begins with the original GRR and then extends to include our (re)Vision. As one reads the vignette, deep content learning and student interdependency will emerge as key outcomes in the (re)Vision.

We begin with an illustration of a Grade 3 character development literacy lesson to compare and contrast the original GRR with the (re)Visioned framework to incorporate interdependency.

Focused Instruction

Teacher reads a story to students. Teacher thinks out loud as the story is read, asking questions related to characters in the story. Who are the main characters? What makes up a main character? What are some traits that make up these characters? (Physical/emotional characteristics.) Students chime in or ask clarifying questions. Teacher models a story T-chart that displays the emotions of each of the main characters being studied. Students provide some input as teacher models aloud thinking and completion of the T- chart.

Guided Instruction

Teacher completes another T-chart for a different character within the story. Teacher provides guidance as students begin taking on more responsibility for completing the chart with the teacher. Teacher asks prompting questions and offers additional aloud thinking as he/she provides scaffolding to student contributions. Teacher asks the students to predict how they think the character traits of specific characters will lead to specific outcomes of the story. Students offer answers to the discussions question(s) from the teacher.

Collaborative Learning

Students together work through a constructed mind map about the development of specific characters in the story. Students provide answers as the teacher continues scaffolding for increased student participation. More planned questions are placed on the student.

The teacher then provides groups of two students a partially completed mind map of a specific character found in the story. Each small group of two students is tasked with completing a mind map under certain guidelines created by the teacher.

Independent Learning

To be completed individually, students are asked by the teacher to read a short story of their choice and develop the character(s) in the story using a mind map. The completed map will then be utilized to write a short story about how the character analyzed could make a positive difference on a mutual friend's or classmate's life.

Interdependent Learning

Students are assigned to teams of four. The teams are provided guidelines for the culminating interdependent assignment. The teams will assume a character in a story they create and collectively author. The topic of the story, as written in the guidelines, must be connected to doing something good for someone else. Large scale examples are shared by the teacher. But he/she is careful not to reveal ideas or "do the thinking" for the student teams. The student team thinks aloud and begins to sketch out ideas by writing down any ideas on a central paper placed on the team's table.

Some ideas include, providing a Thanksgiving Day dinner to a family in need, contributing to a housing project with Habitat for Humanity, or developing a clothing drive for people in need. Once the brainstorming time has expired, students announce and discuss the ideas put forth by the team. Each idea is discussed against an established rubric the teacher has provided. The team eventually comes to consensus on one central service project, but different from the other four groups in the classroom. Each team must balance – carrying out the service project with capturing the team's story in written form describing details of each character's role and responsibility.

Goal Development

As the team decides on a central service to provide an individual or small group in need, they draft several different outcomes to their work. Depending on the topic, this could vary from team to team. The contributions are narrowed down to four reasonable, but distinct, outcomes. Each teammate is the leader of one specific outcome and is responsible for achieving it through the service work project.

Problem Analysis

Each teammate presents their specific outcome to the others in the group with incremental action steps to the work. These action steps also highlight potential celebrations and challenges that could arise during the course of implementing the service. Each teammate records the potential challenges on a graphic organizer to present to the group during the Reciprocal Inquiry phase of the collaboration.

Reciprocal Inquiry

Each teammate has the opportunity to share the potential obstacles to their work with the others on the team. An idea exchange occurs, between members of the group and the presenter records all of the possible solutions offered by the three existing teammates. The presenter then uses this information gathered by the team as he/she begins the physical and collective work of implementing the project within the next phase of *Generative Problem Solving.*

Generative Problem Solving

The team implements the service-learning project as outlined in their plans. Each team member is careful to confront the discussed challenges and achieve them with solutions offered by the collaborative group. Once the project is completed the team presents their experience and appropriate details to the remaining class members. Each teammate describes his or her role and contribution to the project and elicits questions and comments from the audience.

Finally, the team gathers again to write a draft of their experience. Each member provides a descriptive narrative of their efforts and explains their specific responsibilities within the successful completion of the project.

Interdependency

Once in final draft form, the student discusses the written piece with his family and the teacher at a conference led by the individual student. The team (student, teacher, and caregiver) work together to add to the narrative and determine additional service work for the local area that could be incorporated as a routine into the student's personal life.

4th Grade Science Lesson

Inquiry is a central component to the collaborative learning process in science classrooms. When students have an opportunity to collectively decipher a correct answer or come to a consensus, they delve deeper into the learning process. The teacher supports students within the collaborative environment and self-directed learners develop through hearing the voices of all involved, discussing viable solutions, and sharing in their critical thoughts with others. It is important to note that when this learning is cultivated by the teacher, a collaborative community emerges and an open dialogue of ideas is encouraged. MacDougall (2013) surmised:

We get excited when a question is asked...A typical teacher response is often to point to the correct answer and explain why the answer is correct. In another classroom, a student asks the same question, but the response from the teacher is different. In this classroom the students are expected to talk about what they think the answer is, share why they think the answer is correct, and attempt to come to a consensus on the answer before they seek mediation from their teacher....student thinking through orchestrating student-to-student interactions in a climate...promotes collaboration. The expectations are for students to share their thinking...use credible evidence to justify their thinking, and reach a consensus (p. 59-60).

Focused Instruction

The teacher plans a standards-based unit on the study of environmental changes focused

on wind and water. The teacher presents information about what erosion is, uses a multi-media approach for demonstrating the lasting impacts of wind and water and how it erodes the earth over time. Examples include, ripples in dirt, texture of rocks from a continuously flowing river, or holes in a residential gutter caused by rainwater.

At the onset of instruction, the teacher provides learning targets associated with the lesson, the academic vocabulary that will be embedded, and the assessments procedures and rubrics that will gauge learning criteria. The teacher instructs about acidic rain, wind patterns, strength, and velocity. The teacher then uses a cause and effect graphic representation to foster an understanding of these two weather related elements.

Guided Instruction

The students work with the teacher to complete the cause and effect graphic representation. After the teacher provides an example or two, the students complete the causes/effects of weather-related erosion patterns and complete the cause and effect chart under the close direction of the teacher. Students also identify any personal connections to this content and embed this as part of the represented chart.

Collaborative Learning

Students are assembled in teams of two and given a second graphic organizer (mind map). Paired teams are instructed to research and determine three additional weather-related impactful patterns. These could be drought, flooding, blizzard/ice storms or ice dams. Under each of the four chosen patterns, students will provide a narrative description of each and describe moments when they have witnessed these in their personal lives. The teacher will move about the learning space, checking-in with paired groups and asking open-ended questions, driving deeper conversations about the erosive patterns described.

Independent Learning

Students demonstrate their understanding by becoming a journalist to write a newspaper article in the local paper about erosion patterns emerging from the "mind map" activity. Individual submissions are reviewed and the teacher selects a story to facilitate the forthcoming interdependent learning opportunity. The teacher subsequently selects a student's story about the impact of farming erosion on the upcoming Fall harvest.

Interdependent Learning

From the feedback returned by the teacher, students are instructed to participate in an authentic performance task acting as officers in the Department of Natural Resources (DNR). The teacher instructs students to create a plan of action for protecting a local farm from the weather elements that impact crop fields in Southeast Minnesota prior to the harvest. For example, this might include, unusual rainfall amounts in the summer or detrimental temperatures in early fall. Students then present their work via a technological presentation with prescribed roles for communicating the information to the remaining classmates. The audience is expected to ask questions to further the group's thinking.

Goal Development

Based on local DNR data, teams of four students determine that wind erosion is the most detrimental aspect impacting crops on open farm lands. The team of students collaboratively identifies an objective to engage in learning how to prevent wind erosion on local farms.

Problem Analysis

In response to this problem, the teams of students analyze the current wind impacts on local farms and the crop damage caused by heavy and sustained winds. Students conduct research on current and future mitigation strategies implemented by the DNR and farmers. Students also analyze various news and information sources that produce information about wind erosion to determine factual and/or biased information.

Reciprocal Inquiry

Teams engage one another in a balanced exchange of ideas to analyze selected farms in the surrounding area. This analysis will include an understanding of the local effects of wind and weather damage existing in the immediate area and a comprehensive understanding of weather-related impacts on crops and crop production.

Generative Problem Solving

The team of students is charged with creating a model that will reduce or eliminate the wind erosion and damage of crops. Students will be given specific instructions relating to size of structure. Teams will collaboratively discuss their potential structure solutions, sketch their designs, come to consensus on a design (this may include a combination of elements developed by different groupmates), build their structure from the collected materials, test their structure against the constraints and criteria set forth by the teacher, and present progress and findings throughout the problem solving process. Groupmates will determine if the designed structure worked against the constraints. If not, each student will explain different components of why the model failed and how it could be more impactful with a redesign and rebuild. This continuous cycle of inquiry then repeats itself until a product withstands the constraints posed against it.

Interdependency

Once in final draft form, the students being more familiar with wind damage and the possible developed models for limiting the impact, devise an extended plan to monitor the plan and collaborate periodically around the problem and the results using the model built.

9th Grade Social Studies

Equity and social justice themes frame the central components of contemporary social studies curriculum and instruction. In order to build teacher efficacy for teaching equity and social justice in addition to creating interdependent students, we provide the following vignette.

Focused Instruction

The teacher plans a standards-based unit on the study of the indigenous peoples of their state within the "State History" social studies curriculum. The teacher identifies the learning targets, key vocabulary, learning methods and assessment of student learning. The teacher instructs about ancestral lands, provides a historically accurate description of cultural practices per Nation, and provides students with a timeline of white settlement and list of vocabulary terms within the context of Native American studies within the State History curriculum.

Guided Instruction

The teacher provides each student with a map of the state that depicts the location of the Native nations, as well as the specific tribal lands of the community in which the students live. Students work alongside the teacher to orient themselves to the map, identifying where their school resides relative to the map. Students also identify the towns or areas in which their relatives live within the state in relation to ancestral lands.

Collaborative Learning

Students are then instructed to work in teams to analyze the historical progression of non-Native peoples into the state, examining the policies and timelines of white people taking control of the area. Students create a T-chart to compare/contrast the experiences of indigenous peoples relative to non-Natives.

Independent Learning

Students demonstrate their understanding of the history of native tribes of their state and local geography to the teacher by turning in their map for review and feedback. The teacher provides written and/or verbal feedback and confers with each student on their understanding of the feedback provided.

Interdependent Learning

The teacher designs an authentic performance task, instructing students to create a "Digital Museum Exhibit" featuring a Native American tribe's stories/legends, symbols, or artifacts local to their state. Students will use a website generator or digital presentation application to create a "museum walk" for their peers, acting as the museum guide or "Docent" of the exhibit.

Goal Development

Students identify the objective to engage their peers or audience in learning about an indigenous story/legend, symbol, or artifact of which the student self-selected to explore and become the Docent. Students apply their understanding of the function and purpose of museums to designing and planning their exhibit.

Problem Analysis

Students analyze the structure of museums in order to create their digital museum walk experiences. Essential to understanding historically accurate museum exhibits is the critical analysis of primary source documents and the multiple versions of told history.

Reciprocal Inquiry

Students engage one another in dialogues to critically analyze their selected museum exhibit to develop a holistic understanding of Native experiences in their state/locality. Students consider topics such as cultural appropriation as they question one another about their understanding of the relationship among topics.

Generative Problem Solving

Students create their final digital museum exhibit with an expansive understanding of Native experiences during white conquest. Students explore and document the historical causes of indigenous oppression occurring to the present day in order to explore solutions. Present-day examples include events such as the Dakota Access Pipeline protests by the Standing Rock Sioux in 2016-2017; Native sovereignty and governance; Native reparations; economic and social oppression and depression, and the like.

Interdependency

Individually and collectively, students emerge from the (re)Vised interdependency model capable of evaluating complex historical, political, social, and economic circumstances. Certainly, the knowledge, skills, and understanding achieved transfers to the every-day life occurrences of home and work life of an engaged citizenry.

In sum, the above narratives illustrate examples of how the (re)Vision can be applied to core areas of instruction; however, we suggest the (re)Vision be implemented with all other content areas or social/emotional aspects of child/adolescent development and learning.

Future Research

This is a conceptual paper, but we are designing a mixed-methods study to evaluate the efficacy of our (re)Vised GRR conception in the field. The mixed-methods approach will utilize a widely-adopted teacher observation rubric, qualitative interviews, and teacher self-reported surveys to collect the data necessary to effectively evaluate our conceptual framework. Specifically, we have designed observation protocols, interview questions and processes, and survey inquiry tools that align to various research questions to explore student interdependency as described by our four descriptive strands. Our study is planned for regional exploration by soliciting principal-identified teachers who demonstrate student-centered engagement strategies in their instructional practice.

Conclusion

Our conception that the Gradual Release of Responsibility (GRR) does not end with *independent* learning--rather, that students can become *interdependent* learners as a result of a specifically designed four-stage learning model--is novel for the Field of Education. From Kindergarten classrooms incorporating rich station learning to high school statistics classes diving into infectious disease data, our (re)Visioned conception provides a framework for multitudes of classrooms throughout the United States. Our work provides a critical exposition of the deep learning occurring in contemporary educational spaces which, indeed, transfers to an individual's work and home life.

We believe that the status quo of limiting our thinking about student capabilities of only becoming independent learners is unacceptable.

Challenging antiquated pedagogies is imperative for our field, as Kohn (1992) asserted, "If there is a single concrete image that represents the transcendence of mutually exclusive goal attainment [in schools], it is a picture of three or four children sitting around a table animatedly exchanging information and ideas" (p. 200). Teachers can positively impact students by implementing the (re)Visioned GRR framework through intententially incorporating the strands of goal development, problem analysis, reciprocal inquiry, and generative problem-solving. As a result, teachers can effectively develop and support interdependent children and adolescents prepared to lead for a lifetime.

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