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Peer Tutoring and Deep Understanding

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According to the *College and Career Readiness Evaluation Consortium GEAR UP Student and Parent/Family Service Definitions*[1] tutoring/homework assistance is defined as follows.

> **Tutoring/homework assistance** services provide additional academic instruction designed to increase the academic achievement of students. Tutoring can occur one-on-one or in small groups before school, during school, after school, during study or lunch breaks, or on weekends and be provided by GEAR UP staff, hired tutors, teachers, trained peers, and/or volunteers.

> **Virtual tutoring/homework assistance**: Virtual tutoring services include services that are provided via remote access through the internet or other means.

As can be seen from this definition, tutoring can be delivered in various ways. The focus of this paper is on tutoring that is delivered face-to-face by peers. Clearly we recognize the important role that adult tutors may serve, and the emerging and important role for

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[1]http://www.edpartnerships.org/Content/NavigationMenu/Programs_and_Services/GEAR_UP_Data/Evaluation_Consortium_CCREC/GEAR_UP_Service_Definitions_Report.htm

technology-assisted or technology-delivered tutoring programs. We have decided, however, to focus on peer tutoring because of its potential for promoting deeper understanding of content in both the tutor and tutee.

Tutoring Benefits

The benefits of tutoring have been recognized for a number of years. Particularly important for peer tutoring are the potential academic gains for both the tutor and the tutee (Cohen, Kulik, & Kulik, 1982; Cloward, 1967; Roscoe & Chi, 2007; Topping, 1996). Other potential benefits include increased tutee motivation as a result of exposure to success models, more active and engaged learning by tutees, and general economic advantages such as the cost effectiveness of tutoring when compared to other educational interventions (Levin, Glass, & Meister, 1987; Topping, 1996).

Peer Tutoring and the High-Expectations, College-Going Culture

Concerns over the apparent lack of college readiness among American high school students have produced recommendations for increased rigor in American schools. The Common Core State Standards Initiative (CCSSI) is an example of this type of recommendation (http://www.corestandards.org/). The intended impact of the CCSSI is increased academic rigor at both the secondary and elementary levels. With these increased academic demands, it is reasonable to assume that more students will need academic support to meet those standards (e.g. tutoring, credit recovery, supplemental instruction). This could signal not only an increase in demand for these services, but also some restructuring of those services to help schools meet the higher expectations contained in the CCSSI standards. As schools search for ways to deliver these support services, peer tutoring could be seen as a relatively low cost and effective method to deliver the needed academic support.

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Potential Academic Benefits from Tutoring Reconsidered

Roscoe & Chi (2007) noted that the academic gains observed for tutors are often "underwhelming" (p. 536). In the studies they reviewed, Roscoe and Chi further noted that tutors tended to have a knowledge-telling bias; they focused more on delivering knowledge than helping tutees construct or develop knowledge. For example, tutors tended to deliver explanations that "simply revealed answers,

summarized facts, or described procedures with little elaboration or construction of knowledge" (p. 552). Although these types of activities may be needed at times, they are unlikely to build the deep understanding of content in either the tutor or tutee that is required by a high-expectations college-going culture.

There is, however, extensive theory and research about the types of learning activities that may produce deep or meaningful understanding in tutors and tutees. For example, the contrast between deep/meaningful learning with more shallow or rote forms of learning is an organizing theme in cognitive learning theory (Ausubel, 1963; Craik & Lockhart, 1972; Wittrock, 1989). From an assessment of learning or a curricular perspective, teachers are no doubt aware of the distinction between levels of learning made in Bloom's Taxonomy (Anderson & Krathwohl, 2001) or Hess' Cognitive Rigor Matrix (Hess, Jones, Carlock, & Walkup, 2009).

In general, deep or meaningful learning is encouraged when learners actively find ways to expand on what they are learning and to build meaningful connections to their prior knowledge. These processes can be accomplished a number of ways including the following (Fetsco & McClure, 2005).

1. Transforming the to-be-learned knowledge to another form (e.g. paraphrasing, summarizing, creating visual representations)
2. Applying the to-be-learned knowledge (e.g. explaining the to-be-learned knowledge to another person, using the to-be-learned knowledge to solve problems).
3. Connecting to-be-learned knowledge with other knowledge (e.g. creating analogies, organizing to-be-learned knowledge based on patterns).
4. Extending or embellishing the to-be-learned knowledge (e.g. creating new examples of a concept, adding details from other sources).

The implementation, however, of these activities into peer tutoring may be challenging. Roscoe and Chi (2007) found that even when tutors receive training to the contrary, they often resort to the knowledge telling bias discussed earlier. Also, for both tutors and tutees to achieve deep understanding, both will need to engage in processes of actively incorporating new learning into existing

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knowledge (Zhong & Majchrzak, 2004). Both tutors' preparation to tutor and the tutoring process will consistently need to provide a focus on learning for deeper understanding.

Recommendations for Tutoring for Deeper Understanding

It is important to note that the following recommendations were derived from the theoretical literature on learning and general findings from the tutoring research. Those who chose to implement these are advised to modify them to take into account special circumstances in their learning environments.

Clearly Communicate an Understanding Goal

It is important for both tutor and tutee to understand that the goal is deep or meaningful understanding. Otherwise, tutees may see the goal as getting homework or coursework done, even if the tutor's goal is to help students understand what they are doing (Topping, 2000). In math, tutors can communicate an understanding goal by having students describe what they are doing and why. In helping students prepare for a test, tutors can mix together factual and understanding based questions. Of course, this recommendation assumes that the classroom learning goals are also to develop deep meaningful understanding.

Build a Respectful and Caring Relationship

Tutoring, as is the case for any teaching, is about forming relationships; effective tutors build respectful relationships with their students (Gordon, Morgan, O'Malley, & Ponticell, 2007). Tutors' knowledge about tutees helps them provide relevant learning experiences which in turn make it more likely that tutees will engage in rigorous learning activities (McNulty & Quaglia, 2007). One way to build a respectful relationship is to involve tutees in key decisions about their own learning.

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Consider the Use of Mutual Assistance Strategies

Peer assisted learning approaches such as reciprocal peer tutoring, scripted cooperation, and guided reciprocal peer questioning are designed so that student pairs or small groups of students work together to help each other learn material at a deeper level (Dioso-Henson, 2012; Fantuzzo, Riggio, Connelly, & Dimeff, 1989; King,

1999; O'Donnell & Dansereau, 1992). For example, with guided reciprocal peer questioning, students independently prepare questions over a lecture segment or piece of text using question starters that promote deeper analysis of the lecture or text. Students then take turns in small groups posing questions and discussing them. These types of strategies have a collaborative feel to them as each student takes on part of the tutoring role.

Periodic Review and Deeper Understanding

Periodic review can serve multiple purposes for building deeper understanding. Tutors can begin a tutoring session by reviewing concepts or skills from previous tutoring sessions that become the basis of useful connections or anchors for new learning. Review can also be a time to encourage tutees to think about previously learned ideas in a variety of ways. Review at the end of a tutoring session can focus attention on key ideas addressed during tutoring. Hall (2002) refers to this type of targeted review as "judicious review." To be done effectively, judicious review relies on the ongoing monitoring of students' learning in order to target the concepts and skills that may need periodic review.

Tutor and Tutee Questions Can Support Knowledge Construction

The skillful use of questions is a key component of successful teaching for understanding. Both tutors and tutees should be encouraged to ask questions that promote deeper understanding. Previously discussed approaches such as guided reciprocal peer questioning can provide a structure for teaching this skill to students.

Tutor training might also provide additional guidance on components of successful questioning such as wait time or thinking time (Atwood & Wilen, 1991; Rowe, 1986). Tutors need to be encouraged to provide their learners with enough time to think about a question before they provide more help. Sometimes in their rush to help, tutors may actually interfere with learners' thinking. Tutors could also be taught how to ask more process-oriented questions such as, "How did you know what formula to use here?" These questions can be used to focus tutees on what they are doing and why.

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