

## Moving from the *If* to the *How*: Improving Instructional Quality by Delineating Stages of Teacher Effectiveness

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### ABSTRACT

*Looking across the papers of this special issue, Volume 48, Number 2 and Volume 49, Number 1, this commentary paper suggests that by attempting to set stages of teacher effectiveness, collectively these five papers contribute toward making a step from exploring if teachers matter for student learning to understanding how teachers could be supported to improve the quality of their work and how this, in turn, could enhance student learning. After identifying methodological strengths of these papers, their three main perceived contributions to teacher education and policymaking are outlined. Areas for further consideration and ways in which the work reported in these papers could be advanced are also provided. By pointing to different future paths of this work, this paper makes a case about how promising the shift from the “if’s” to the “how’s” advanced in this paper collection could be.*

### INTRODUCTION

Talk to parents before the beginning of a school year and you will realize how anxious they feel about who is going to be assigned as their children’s teacher during the new academic year. The discussion typically unfolds in any of the following two paths. Parents who consider themselves lucky argue that during the previous academic year their children had a very good teacher who helped

them learn and grow—and they wish that they be equally lucky during the forthcoming academic year. At the other end of the spectrum, other parents complain about the quality of their children’s teachers and hope they will be luckier in the next academic year. The situation is, of course, not always black and white, and there are various shades in between. Regardless of how blessed or unfortunate parents feel that their children—and they themselves—have been because of last year’s teacher assignment(s), the bottom line is clear: teachers do make a difference in student learning. This argument is also reinforced by parents’ own school memories about, say, that fourth-grade teacher who helped them not be afraid of solving mathematics problems or that gifted sixth-grade teacher who was superb in terms of conveying different historical concepts in a very perceptible manner.

What parents articulate in these conversations—explicitly or more covertly—has been the object of inquiry of educational research for more than four decades. During these years, scholars have amounted empirical evidence suggesting that teacher not only matter for student learning (e.g., Hanushek & Rivkin, 2010; Nye, Konstantopoulos, & Hedges, 2004; Rockoff, 2004; Stronge, Ward, & Grant, 2012; Wright, Horn, & Sanders, 1997), but also, and perhaps more critically, that they matter more than other school factors (Creemers, 1994; Hattie, 2009; Muijs & Reynolds, 2000; Strong, 2011).

Research over the past decade has also suggested that teacher effects are cumulative and last for a sequence of

years (Konstantopoulos & Chung, 2011; Rivers & Sanders, 2002). For example, reviewing 18 studies that explored the magnitude of teacher effects, Nye and colleagues (2004) concluded that up to one fifth of the variation in student achievement is associated with variations in teacher effectiveness; along similar lines, Hanushek (2002) reported that students who are taught by a teacher who is in the upper end of the effectiveness scale outperform their counterparts taught by a teacher at the lower end this scale by an entire year's worth of growth. Using experimental data from Project STAR and its follow-up study, the Lasting Benefits Study, Konstantopoulos and Chung (2011) also found that teacher effects in kindergarten can even be traced in sixth graders' achievement in all three subjects under consideration: mathematics, science, and reading. Interestingly, this study also predicted that, net of other factors, a student taught by effective teachers for six consecutive years will experience achievement increases of about one-half of a standard deviation in mathematics and reading compared to a student taught by less effective teachers—which amounts to five-fourths of a year's growth (Konstantopoulos, 2012).

Collectively all these pieces of evidence underline the critical role that teachers have in promoting student learning, thus negating earlier findings in the 1960s and 1970s (Coleman et al., 1966; Jencks et al., 1972) that doubted teachers' and schooling's contribution to student progress. Having answered the question as to whether teachers matter for student learning—and quite satisfactorily—the time seems ripe for the educational community to address a different set of questions: How do teachers matter? What is it that teachers do that contributes to this learning? How can we improve instructional quality? How can teachers be (better) supported to gradually offer instruction of higher quality? Answering these questions is critical if we are to move from “feeling lucky due to being assigned a good teacher” to discussions on how we can help all teachers improve by addressing their own learning needs, and consequently, uplift the quality of instruction offered to all students. Scheerens (2013) has very aptly delineated this need, when noting that despite the wealth of educational effectiveness research findings over the past decades, our work, as a research community, has not contributed significantly to the improvement of teaching practice.

### **METHODOLOGICAL STRENGTHS AND PERCEIVED CONTRIBUTIONS OF THE PAPER COLLECTION**

The set of papers included in 48.2 and 49.1 makes a step toward addressing these questions. Building on

almost a decade of research in which the authors and their research group have developed a theoretical model to explain educational effectiveness (Creemers & Kyriakides, 2008), and have validated this model in a series of national (Kyriakides & Creemers, 2009; Kyriakides & Tsangaridou, 2008) and international (Panayiotou et al., 2013) studies, as well as in longitudinal studies (Creemers & Kyriakides, 2012) and meta-analyses (Kyriakides, Creemers, Antoniou, & Demetriou, 2010), the authors are now moving from understanding educational effectiveness to exploring how research can provide insights into improving teaching quality.

The works hosted in this special issue do so by exploring whether the eight classroom factors of the Dynamic Model of Educational Effectiveness (DMEE), alongside the five dimensions in which these factors are measured, can be grouped into different clusters/stages, in such a way that specific suggestions for improving teaching can be offered. Moving a step farther, one of the studies (Antoniou, 2013) explores whether an intervention that takes into consideration teachers' grouping into these clusters can support teacher learning and growth, and consequently help improve teaching quality and enhance student learning.

As a set, the four studies and supporting narratives presented in this special issue are remarkable in many respects, one of which being that they explore whether stages of effective teaching can be identified by employing different designs, using different instruments, focusing on different subject matters, considering different educational levels, and working in different educational systems. Specifically, while some studies are cross-sectional (Christoforidou & Xirafidou, 2014; Kyriakides, Archambault, & Janosz, 2013), others report on group randomization longitudinal studies lasting one (Azkiyah, Doolaard, Creemers, & Van Der Werf, 2014) or more years (Antoniou, 2013). A gamut of instruments is also used, ranging from student surveys (Kyriakides et al., 2013), to teacher self-reports (Christoforidou & Xirafidou, 2014), to (multiple) classroom observations (Antoniou, 2013; Azkiyah et al., 2014).

Two levels of education—primary and secondary education—are considered, while the authors focus their exploration on two different subject matters: mathematics (Antoniou, 2013; Christoforidou & Xirafidou, 2014; Kyriakides et al., 2013) and English (reading) (Azkiyah et al., 2014). Equally important, the studies are conducted in different educational systems: Canada (Kyriakides et al., 2013), Cyprus (Antoniou, 2013; Christoforidou & Xirafidou, 2014), Greece (Christoforidou & Xirafidou, 2014), and Indonesia (Azkiyah et al., 2014). By employing this variety of designs, instrumentation, educational levels, and educational settings, the studies, as a whole, serve as a good test for exploring the generalizability of the stages

of effective teaching explored and advanced in this paper collection.

Besides these methodological merits, this set of papers makes a substantive contribution in terms of its original goal: to help improve and advance instructional quality. I see three main ways in which the papers of this collection contribute toward this direction. First, I concur with Antoniou (2013) that defining stages of effectiveness in vague terms (e.g., being a novice, being an expert teacher) cannot inform policymakers and teacher educators as to how teachers can be supported to improve the quality of their work. Instead, what is highly needed is a clear description of teacher behaviors/skills situated at each stage, as well as a concrete delineation of the progression from stage to stage.

Without such descriptions, as Dall'Alba and Sandberg (2006) suggested, helping teachers develop and improve their teaching skills might be difficult to accomplish. Although this set of papers does not yield exactly the same number of stages (e.g., four stages in Christoforidou & Xirafidou, 2014; and Kyriakides et al., 2013; and five stages in Antoniou, 2013), some clear trends can be deduced when considering the results of these papers in conjunction. To start, a progression from quantitative characteristics of teacher routines to more qualitative characteristics and more advanced applications of the eight classroom factors of the DMEE is evident. Moreover, a gradual move from more teacher-centered approaches to approaches that give students a more prominent and active role is discerned in all papers. Also, it should not go unnoticed that in all paper classifications, differentiation appears at the most advanced stage; nor should it be missed that transitioning to this stage was found to be remarkably harder than transitioning in between any other two adjacent stages. This latter trend corroborates previous research findings (Konstantinou-Katzi, Tsolaki, Meletiou-Mavrotheris, & Koutselini, 2013; Tomlinson, 2005) pointing to the difficulties that inhere in differentiating one's instruction to meet different student needs.

The second way in which I see this paper collection contributing to the aforementioned goal pertains to a clear message that the papers convey by advancing a sequence of stages: that professional development should be geared toward teachers' individual needs, as these needs are encapsulated in the stage at which teachers are found to be situated. As Antoniou's paper (2013) shows, the one-size-fits-all professional development approach might not be particularly useful to help teachers improve the quality of their instruction, and more critically, sustain this quality in subsequent years. In fact, it is interesting to note that while we recognize the importance of differentiation for student learning, as a research community we might not be equally

willing to recognize such a possibility for teacher learning. This is particularly true when asking teachers to participate in professional development sessions that address the "average" teacher, instead of taking into consideration teachers' individual learning needs (cf. Hofman & Dijkstra, 2010; Petrie & McGee, 2012). In doing so, we seem to ignore that just like for any learner, the Vygotskian zone of proximal development (cf. Vygotsky, 1978) applies to teachers, as well.

Moving a step further, two of the papers in this collection (Antoniou, 2013; Azkiyah et al., 2013) clarify that by simply asking teachers to reflect on their practice does not suffice to support teachers' shift from one stage to the other. In contrast, teachers need focused and probing reflection in order to learn and improve—what Piaget (1980) would call "reflective abstraction." In Antoniou (2013), none of the teachers participating in the holistic approach—the approach that encapsulated the idea of letting teachers on their own devices to reflect upon their practice and come up with suggestions for improvement—was found to progress between adjacent stages; in contrast, one third of the teachers participating in the Dynamic Integrated Approach were found to experience such a shift.

In this latter approach, teachers were guided to reflect upon their practice but in a systematic way and by focusing on certain teaching practices that were within their zone of proximal development, to use the Vygotskian term. Similarly, in Azkiyah and colleagues' study (2014) simply asking teachers to read and reflect upon a national educational standards document was less supportive for teacher development and for improving the quality of their instruction compared to an approach that immersed teachers in an environment in which they had to consider their own practice through the lens of the eight classroom-level factors of the DMEE.

I argue that this idea of focused and guided reflection around certain teaching practices/factors constitutes the third main contribution of this paper collection. This is because, as it is oversimplistic—and often dangerous—to think that students might learn and construct meaning on their own by simply be engaged in certain activities/discussions without proper facilitation and guidance from the teacher (cf. Chazan & Ball, 1999), it is equally problematic to consider that reflection on practice in and of its own, without guidance, focus, and support can help teachers improve their daily practice. For as Chazan and Ball (*ibid.*) adroitly put it by parallelizing the process of learning to the process of biological fermentation, "intellectual fermentation needs a delicate control of the heat" (p. 8)—it needs to be skillfully facilitated and directed toward certain learning goals.

## EXTENDING THE LINE OF WORK ADVANCED IN THE PAPER COLLECTION TO FURTHER UNDERSTAND TEACHER LEARNING AND GROWTH

Besides these three main lessons that can be learned from these papers regarding teacher learning and growth, there are some other pertinent issues that are worth reflecting upon in order to enhance our understanding of teacher learning and growth. Apparently, the authors do not address these issues due to space limitations. However, addressing such issues in more detail in future works could support other scholars also interested in structuring quality professional development sessions that help teachers improve the quality of their instruction.

For example, it would be interesting to know the specific design and nature of the professional development programs which are based on guided reflection and are built around selected factors from the DMEE. What exactly are teachers doing during the meetings? How do they work on the factors/dimensions that pertain to their stage group? Are they given opportunities to rehearse certain practices and elicit other teachers' feedback as well as that of the facilitator—an approach that is advanced in some recent studies (e.g., Grossman et al., 2009; Lampert et al., 2013)? How are they implementing what they learn in their daily practice and what insights and questions/concerns do they bring back to subsequent meetings? How are these concerns addressed and how are teachers supported to make further progress? What if teachers reach a plateau after which they do not seem to make much progress or move to subsequent steps—as Antoniou's study suggests? How can teachers be supported at this juncture to not only solidify what they have already learned but also continue growing? Although some of these issues are partly addressed in a recent publication (Creemers, Kyriakides, & Antoniou, 2013), the research group is encouraged to provide more detailed accounts of this learning and growth as well as the challenges that they, as teacher developers, have faced along the way.

Methodologically speaking, addressing such issues will require, as Antoniou (2013) himself notes, beyond conducting large-scale studies also exploring the possibility of engaging in smaller scale qualitative work in the form of (ethnographic) case studies. For example, this might involve following a group of teachers for a given period to unravel and understand the mechanisms of growth and learning that was documented “on the average” in these papers, and how this learning translates into improvements in instructional quality. Of equal importance is to understand what might lead some teachers to regress to previous stages. Even though such regressions are the detrimental minority [in Antoniou's

study (2013) they comprised less than 2% of the teacher sample under consideration], understanding the conditions under which and the reasons for which such regressions occur might provide invaluable insights and guidelines for structuring future professional development programs.

Future studies could also attend to another issue pertaining to teacher training and growth. In both studies that adopted an experimental design (Antoniou, 2013; Azkiyah et al., 2014), the teacher groups exposed to the guided reflection approach were found to improve for as long as they participated in the intervention. When the intervention was over, although most of them did not regress to lower stages, none of them was found to improve any further. This finding resonates with what was discussed above about the need of focused and guided reflection around teachers' practice with respect to the stage at which they are found to be situated.

However, if one is interested in scaling-up this approach, constantly supporting teachers to grow and improve their teaching might be both effort- and time-consuming (and perhaps unrealistic). Therefore, a set of questions naturally arises: What mechanisms can be implemented in schools so that the teaching personnel constantly learns from and improves their practice? Can principals and/or superintendents be supported to facilitate teachers' growth, by closely monitoring teachers' work, identifying the stage at which teachers are, providing focused feedback, discussing challenges that teachers face, and exchanging ideas with teachers about possible ways of improvement? All these questions point to several ways in which, by extending the work reported in these papers, the research group can further unlock the conundrum of teacher learning, and the two associated conundrums of improving instructional quality and enhancing student learning.

Beyond the suggestions outlined above, other ideas for extending the line of work reported in this paper collection can be offered by broadening the scope of the inquiry undertaken in these papers. A promising way for doing so would be to consider incorporating domain-specific practices in the stages generated and advanced by these papers. As Creemers and Kyriakides (2013) note, their work pertains to setting stages for generic teaching factors, namely factors that cut across different subject matters.

There are also domain-specific teaching factors which are more pertinent for specific subject-matters, such as using representations (Charalambous & Hill, 2012), or providing explanations (Charalambous, Hill, & Ball, 2011) in mathematics; demonstrating how to perform a skill by providing selected learning cues in Physical Education (e.g., Chen, Hendricks, & Archibald, 2011); or referencing texts and capitalizing on them during a language-arts lesson (cf. PLATO in MET, 2010). Although for years researchers have either worked on generic or on domain-specific teaching

factors, the time seems ripe to integrate such factors by exploring whether stages of teacher effectiveness can incorporate both types of factors.

Doing so would resonate with the results of recent meta-analyses showing both types of factors to be important for quality instruction and student learning (Seidel & Shavelson, 2007); it would also respond to recent calls for considering both types of factors when exploring what contributes to instructional quality (cf. Hamre et al., 2013). Policy-wise and teacher-education wise, generating such stages will also help understand what might be feasible for teachers situated at different stages to accomplish, and how they can be supported at both fronts—both with respect to their generic practices and in terms of their domain-specific practices—to improve the quality of instruction offered to students.

At both a theoretical and a more practical level more work is also needed to understand teacher learning growth, especially viewed from a stages perspective. How do teachers develop their skills over time? What motivates this development and shift from one stage to the other? To what degree are teacher learning trajectories similar or different in nature, evolution, and intensity? What teacher characteristics beyond teacher experience examined in Antoniou (2013) might contribute to this development? To what extent could teachers' knowledge—be it their pedagogical knowledge or their pedagogical content knowledge (cf. Charalambous & Hill, 2012; Shulman, 1986)—contribute to this learning and growth? Could these stages also be observed if the approach reported in these papers is scaled-up to also include non-volunteer teachers? Could these stages be observed in academic subject areas beyond mathematics and reading examined in these papers (e.g., social science, music, and Physical Education)?

Equally important, would a generalist teacher who teaches different subject matters be situated at the same stage regardless of the subject matter taught, especially given some

recent studies (e.g., Graeber, Newton, & Chambliss, 2012) suggesting that teachers might be differentially effective across different subject matters? What is the role of students in the trajectories reported in these papers? How would individual teacher trajectories look like across consecutive years when the student population a teacher is assigned to changes—a question that becomes particularly critical given recent arguments (e.g., Kennedy, 2010) and empirical findings (e.g., Nurmi, Viljaranta, Tolvanen, & Aunola, 2012) on how the student-teacher interactions might affect the quality of instruction and student learning?

Apparently, this list of questions is not exhaustive. It shows, however, that the line of research and thought advanced by this set of papers is very promising, both from a theoretical/research perspective but also from a policy-making and teacher-education viewpoint. It is hoped that studies such as those included in this paper anthology will shift attention to the “how” questions of educational effectiveness so that concerted scholarly efforts are invested in understanding how teachers learn, how they improve, how this reflects in the quality of their instruction, and how this, in turn, contributes to advancing student learning.

Coming full circle, if such questions are satisfactorily addressed, parents might not discuss about feeling blessed and lucky because their children were assigned “good teachers”; in contrast, discussions could shift to how the educational system can help teachers themselves learn and grow, so that this learning is reflected on student learning outcomes.

More critically, by undertaking such studies that make teacher education and development a central focus of inquiry, as a research community we will be in better place to respond to our critics who doubt that teacher education can indeed improve the quality of instruction and uplift student learning (cf. Grossman, 2008). The studies of this special issue provide one good example for doing so that could be imitated and extended.

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