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Lost in translation : congruency of teacher and student perceptions of assessment as a predictor of intrinsic motivation in ethnodiverse classrooms

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Citation

Pat El, R. J. (2012, October 9). *Lost in translation : congruency of teacher and student perceptions of assessment as a predictor of intrinsic motivation in ethnodiverse classrooms*. Retrieved from <https://hdl.handle.net/1887/19934>

Version: Not Applicable (or Unknown)

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Note: To cite this publication please use the final published version (if applicable).

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Issue Date: 2012-10-09

General Discussion

Feedback is one of the strongest predictors of students' motivation for learning (Hattie & Timperley, 2007), but needs to be accepted in order to be successful (P. Black & Wiliam, 2009). Assessment for Learning (AfL) is a two-way process in which not only students adapt their learning with information provided by assessments, but teachers, when they experience a lack of understanding or learning in students, adapt their teaching as well. In this respect, it is of great importance that students' and teachers' perceptions on the nature and content of the assessment provided are congruent. Both need to know where to focus on to further learning and instruction. The aim of this thesis was to explore whether teachers and students are in agreement about the level to which AfL is practiced in the classroom, and whether perception congruencies help explain intrinsic motivation in the classroom.

AfL congruency between teachers and students.

To help answer the research question of this dissertation, about the congruency of assessment for learning perceptions between teachers and students, we developed two instruments to gauge AfL: the SAFL-Q for students and the TAFL-Q for teachers (Chapter 2). Two dimensions of AfL were found to describe the generally agreed upon principles of Assessment for Learning. The first, scaffolding, refers to classroom interaction wherein learning goals and criteria are clarified through and in addition to classroom questioning. The second, monitoring, refers to analyzing student learning progress with the intention to find challenges and opportunities for optimizing learning. The matching items between the two versions and the strong level of measurement invariance mean that, in quantitative analyses of congruency, the different scores between teachers and students can be similarly interpreted for both teachers and students alike.

As expected, student-teacher incongruencies were large. Incongruencies for both monitoring and scaffolding varied greatly between classrooms, were highly homogeneous within classrooms (Chapter 3), and students' perceptions were consistently more negative than those of their teachers. These outcomes are similar to the results of earlier studies, such as those from MacLellan (2001) and Schultz (2001) who showed that teachers also tended to report more use of formative assessment and instructional strategies than their students. As reported in a study by Könings (2007) teachers often indicate that students are invited to take an active part in the instruction and course design, whereas students report they are not.

Do teacher-student congruent perceptions predict intrinsic motivation?

The study's main hypothesis was confirmed; congruency in teacher-student perception of assessment for learning practices (i.e., monitoring and scaffolding) predicted higher student intrinsic motivation (Chapter 4). In a multilevel structural equation model this effect accounted for 70% of classroom (aggregated group level) and 33% of individual students' intrinsic motivation. In accordance with Self-Determination Theory (Ryan & Deci, 2000), the congruency of monitoring and scaffolding perceptions predicts students' intrinsic motivation. The relationship between intrinsic motivation and congruency in the perception of scaffolding was found to be fully mediated by the fulfilment of students' basic needs for competence, autonomy and relatedness, whereas the relationship between congruent teacher-student perceptions of monitoring with interest was mediated by relatedness only. The reason to focus on intrinsic motivation in particular, rather than on intrinsic motivation in addition to extrinsic motivation, lies in earlier research findings. The Self-Determination Theory has been found to accurately describe the process of becoming intrinsically motivated (e.g., Krapp, 2005), but similar validations of how differential fulfilment of self-determination theory's basic needs of motivation affect the more extrinsic forms of motivation (Ryan & Deci, 2000) are still lacking. The relationship between the two is not well understood and its study is hampered by conceptual as well as instrumental challenges (Birenbaum et al., 2006; Hattie & Timperley, 2007).

The question remains in what way perceptual congruency between teachers and students is a more important predictor of intrinsic motivation than solely the perspective of the student. The results of this dissertation offer an insight into the complex relation between perceptions and classroom factors. The reported cross-sectional association between perception congruencies and motivational factors, such as relatedness towards the teacher (Chapter 3), support our hypothesis and confirm conclusions or hypotheses of earlier studies (Loughran, 2010; MacLellan, 2001). Now that it has become apparent that congruent perceptions associate positively with need fulfilment and intrinsic motivation, it would be of particular interest to confirm this hypothesis in experiments to determine whether congruencies are important causes of intrinsic motivational gains.

However, designing an experiment to test this hypothesis is daunting, given the highly interpersonal nature of the interactions involved in the learning environment. This interpersonal nature is suggested throughout this dissertation, where large intra-class correlations indicate a strong within-class 'agreement' between students about the level of congruence in perception between teachers and students as to the use of AfL. Whereas the ICC provides helpful insight in the tendency for (in)congruencies to be present across classrooms as a whole, instead of being purely individual differences, the data does not let us infer in what way student perceptions are dependent of other students in the classroom. It may very well be that perceptions or evaluations of teachers converge towards agreement over time, not only because of shared experiences of teaching practice, but also because of the emergence of some kind of common consensus or opinion between students about their teachers' qualities.

The way intrinsic motivation of students is associated with AfL-perception

congruency was found to be similar for Dutch students and the largest minority groups in the Netherlands, namely second generation Moroccan and Turkish immigrant students (Chapter 5). The results confirm most of the study's expectations. Second generation Turkish and Moroccan students were more intrinsically motivated and the Turkish students in particular showed stronger agreement in perceptions relative to their teacher and higher relatedness than native Dutch students. The absence of differential effects, except for the relationship between autonomy and intrinsic motivation, between the studied populations implies that this model of motivation is not interactional and that second generation Turkish and Moroccan pupils are very similar to Dutch students in how the variables are interrelated. Differences in motivation could be explained on the basis of differences in the independent variables.

Student Language proficiency and congruency of AfL perceptions.

Closer alignment of teacher and student perceptions was found to be related to better student language proficiency (Chapters 3 through 5). The importance of language in understanding the learning environment was underscored by Vygotsky (1978) who highlighted that through practical activity a child constructs meaning on an intrapersonal level, while speech connects this meaning with the interpersonal world shared by the child and her/his culture. The association of language proficiency with scaffolding congruency was stronger than with monitoring congruency. This is especially relevant given the importance of scaffolding for basic needs fulfilment and intrinsic motivation. It might well be that scaffolding activities, which emphasize the need for communication of clear goals and criteria, demands more of teachers and students in terms of being able to recognize subtleties in teacher-student communication than monitoring.

The effect of language proficiency seems robust across datasets, but the strength of the association is rather subdued. Based on the data presented in this dissertation it is difficult to conclude that the association is weak. The self-report measure of Language proficiency showed strong ceiling effects, which may have resulted in loss of power, because of the resulting low variance. There are a number of non self-report language proficiency tests that are either used by educational assessors, or educational researchers (Aarts & Kurvers, 2001)(see Bachman, 2000, for a review), which might be good additions to the self-report scale used in this study for cross reference. The role of language proficiency is probably better tested through triangulation of instruments, rather than one test, to rule out unfamiliarity with testing situations, or a one sided emphasis on specialized skills and components of language

In addition, it might be worthwhile to focus more on particular dimensions of language proficiency. There is a subtle, but clear distinction between academic or school and learning bound language and common, every-day language. In academic language, words may be more difficult than in common language and often carry a more specific definition. Sentences tend to be longer and more complex, and the subjects discussed are oftentimes more difficult and more abstract than usually discussed in common language, for instance at home (Chaudron, 1988; Schleppegrell, 2001). Formative feedback is an example of a type of interaction that students most likely only will experience at

school in which predominantly academic language is used; and is regarded as a different language proficiency (Cummins, 1981). In as much as this complicates the analysis of the role of language, it also helps in developing a more general focus on students, independent of their ethnic background or generational status. The focus on ethnic background is converted into a focus on language performance.

The contradictory nature of Teacher-efficacy on AfL perceptions and motivation.

Teacher efficacy has consistently been found to positively (either directly or indirectly) associate with key student outcomes, such as student motivation (Midgley et al., 1989), student self-efficacy (Anderson, Greene, & Loewen, 1988) student achievement and openness to new ideas (Allinder, 1994). Other studies, however, suggest that teacher efficacy might also block variation in employing instructional strategies (Gerges, 2001), module use, and course organization (Wheatly, 2002). A similar pattern of contradictory findings was found in the studies presented in this dissertation (Chapters 3 through 5). In line with the theory of self-verification (Swann Jr. et al., 2007), which proposes that people would rather learn something about themselves which confirms their self-perceived desirable qualities, than their undesirable qualities, efficacious beliefs about instructional design, and to a lesser degree about student engagement, predicted less congruence between teachers' and students' perception of AfL. We found strong effects for teacher efficacy as regards instructional strategies and, to a lesser extent, teacher efficacy with respect to student engagement. Both engaging students and utilizing varied assessment strategies are core elements of AfL (Assessment Reform Group, 2002) and it would seem likely that if any self-verification processes were taking place, they would relate to efficacy for instructional strategies and student engagement rather than for efficacy related to classroom order. That efficacy for maintaining classroom order did not associate with perception congruency in this dissertation, adds evidence to our theory that a self-verification process is likely to take place. Using Self-determination theory, the contradictory nature of teacher-efficacy could be modeled: high teacher efficacy negatively relates to congruency of both monitoring and scaffolding, but positively relates to fulfilment of the needs for competence and relatedness, which mediate the relationship with intrinsic motivation. Efficacious teachers seem to inspire feelings of competence in their classrooms, and are perceived as more likeable, partly offsetting the negative effect of incongruent perceptions in their classrooms on classroom intrinsic motivation.

Limitation and challenges

Several limitations of the studies reported in this dissertation give rise to questions that need to be addressed in future research.

Multilevel nature of the research

In Chapters 3 to 5, multilevel analyses were conducted to reduce as much as possible the impact of the hierarchically nested nature of the data. In Chapter

2 we did not take the multilevel nature into account, although we did use a nested data structure. Due to the decision to maintain the chapter as close as possible to the version as it was published in the *British Journal of Educational Psychology* (Pat-El, Tillema, et al., 2011), the study was not amended to a multilevel validation study. Even though a multilevel study would add to the quality of the validation, the current validation study is more than satisfactory in providing evidence for a good fit of the proposed factorial solution, as usually multilevel analysis increases the fit of confirmatory factor models instead of decreasing it (Byrne, 2006). This is not a guarantee though, and future studies are needed to confirm the dimensionality of the AfL construct, and the validity of the questionnaire not only at the individual level, but also at the class level.

Difference scores

This dissertation provided support for the existence and importance of differences between teacher and student perceptions in the classroom. However, the use of difference scores remains a contested issue (Cronbach, 1958; Edwards & Parry, 1993). Difference scores are said to be less reliable than more direct forms of comparisons, but this claim is not widely supported, and even regarded as a myth (Edwards, 2001). Nevertheless, difference scores are challenged and this is in part because of the difficulty in interpreting relative distances between groups. This is especially relevant in this dissertation, because individual student perceptions are compared to general teacher perceptions. Those perceptions might be inflated, because teachers can perceive themselves as avid providers of feedback whenever they practice it, even for a few students. As long as other students have other experiences, a class-level mismatch emerges, without any real way of determining whether teachers would agree with those individual students when asked about them specifically. Another problem can be the reliability of scales at their endpoints. Even though tests of homoscedasticity did not reveal any pattern of varying levels of variance, scales do tend to become less sensitive at their extreme points. Even though latent intercepts were found to be invariant between teachers and students in Chapter 2, it is still clear that teachers score at the high end of the AfL-scales. It is possible that the lower reliabilities of the teacher scales, as evidenced by their lower Cronbach's alpha, might stem from teachers extreme scores. This could have resulted in an undetermined impact on any difference scores derived of them.

There are few solutions to the problem of difference scores. Relevant alternatives have methodological issues of their own, such as using teacher and student scores separately and model an interaction effect. This approach does not represent effects of congruence and at best yields approximations that become similar to difference scores (Edwards, 2001). Other alternatives, such as polynomial regression offer more reliability, but do nothing to alleviate the basic problem of comparing general scores to individual scores.

The results of this study generate at least one other difference-score based hypothesis: the difference itself seems predictive of student motivation, regardless of whether this difference occurs on the high end or relatively low end of the perceived level of practise for both teachers and students. It is possible that the difference itself is responsible for the association with student intrinsic motivation. Unfortunately the present study was not designed to adequately

test this hypothesis. Teachers in general scored high on both AfL subscales, and actual practice was not empirically observed. This dissertation does not provide evidence that mismatches have similar effects for teachers who report low levels of AfL practice.

Future studies might focus on more direct measures of comparison so that analyses truly compare how teachers perceive their own feedback behaviour towards individual students. To evaluate whether congruency in perceptions is itself positively related to motivation, irrespective whether the congruency is about low or high AfL-practice, it would be important to select teachers a-priori who are more traditional in their teaching style. By selecting low-AfL practising teachers, the full congruency spectrum can be scrutinized.

Cross-sectional design

The present study provided support for the hypotheses that perceptual differences between teachers and students as regards the quality of teacher support and feedback are associated to student motivation. However, the cross-sectional nature of the analysis and data-gathering preclude the possibility of causal attributions. To further test the hypotheses formulated and tested in this dissertation, (quasi-) experiments are needed. As stated earlier, designing experiments to test the hypotheses of this dissertation is daunting. However, they are a necessity for justifying attempts to translate the finding of the role of perceptual differences in student motivation into classroom interventions, or teacher education.

The importance of congruent AfL perceptions on intrinsic motivation

The studies reported in this thesis yielded four important outcomes. First, students' and teachers' perceptions of the level to which AfL is practised in classrooms are largely incongruent. Teachers perceive more practice of AfL than students. Second, these incongruencies are strongly associated with intrinsic motivation, explained by students' lower feelings of personal competence and autonomy to learn in their own way, and less interpersonal feelings of relatedness towards their teacher. Third, teachers' positive impact on motivational interpersonal factors is partly offset by their own possible over-*efficaciousness*, which might limit the degree to which they reflect on their own teaching. This relationship seems to hold for students regardless of their ethnic background. Moreover, variation in intrinsic motivation between Dutch, Moroccan and Turkish students seem to be explained by their differing levels of congruence with their teachers' perceptions of AfL practice. Fourth, teacher-*efficacy* associates with intrinsic motivation in a dualistic fashion: high teacher *efficacy* negatively relates to congruence, but positively to fulfilment of the needs for competence and relatedness. Even though teachers may be conducive to the maintenance and emergence of feelings of competence in their classrooms, and are perceived as having good relationship with their students, there is also a negative relation between *efficacy* and the perception of congruencies. These findings are in line with arguments in the literature. Teacher *efficacy* is positively related to student outcomes, such as motivation (Ashton & Webb, 1986), but teacher *efficacy* may also interfere with teachers ability to vary in

their instruction (Gerges, 2001; Wheatly, 2002). The implications of these results highlight the need to instruct teachers to reflect on their own teaching. AfL is for the large part dependent on the teacher to be able to adapt their own teaching (Wiliam, 2011), and future research should focus on determining whether helping teachers to reflect on their work helps in creating closer teacher-student perception congruencies, while maintaining the positive effects of efficacy on motivational needs.

