
*Feedback and Academic
Achievement: The Relationship
between Students' Conceptions of
Feedback and Achievement.*

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Literature

- Feedback = information designed to improve learning, “if delivered correctly” (Shute, 2008)
 - Should address three key questions:
 - Where am I?
 - Where am I going?
 - How do I get there?
 - Feedback has powerful effect on achievement (Hattie, 1999) - twice as effective as benchmark ES .40
 - Little known about student conceptions
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- Four types of feedback (Hattie & Timperley, 2007)
 - Task (FT)
 - Process (FP)
 - Self regulation (FR)
 - Self (FS)
- Each type has different effects
- Instruction better than feedback
- Shute (2008) meta-analysis: many conflicting findings
- Excellent summary of dos and don'ts (incl. when and with whom)
- “Good murder” – need to show:
 - **Motive** = student needs it
 - **Opportunity** = student receives it in time to use it
 - **Means** = student willing/able to use it
- One size does not fit all

This study

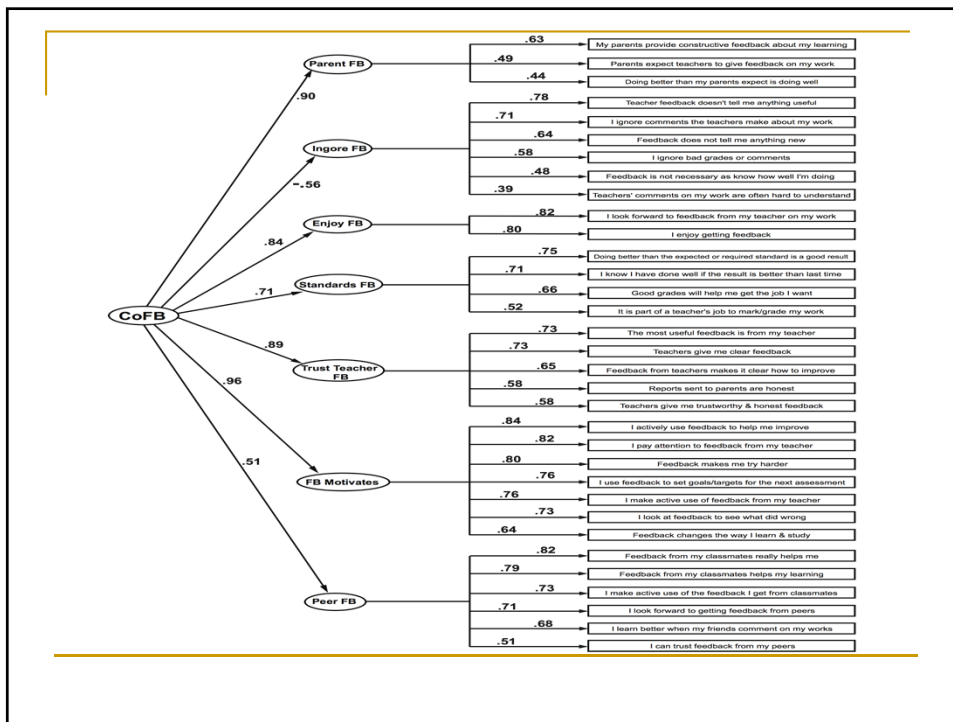
- The instruments
 - Conceptions of Feedback (**CoF-III**)
 - literature based, &
 - student focus groups
 - **asTTle** mathematics
- The schools
 - Three diverse high schools in Auckland
- The students
 - Year 9 (mainly aged 13) and Year 10 (mainly aged 14)

Instruments

- **Conceptions of Feedback (CoF-III)**
 - 42 items (26 from CoF-II)
 - Six point positively packed agreement scale
 - CoF-II - 3 inter-correlated higher order dimensions
 - Peer feedback
 - Feedback is irrelevant
 - Teacher feedback – three first order factors
 - Feedback provides motivation
 - Feedback provides information about standards
 - Teachers give trustworthy feedback
- **asTTle v4 mathematics**
 - Large mathematics item bank (~1600 items)
 - Teacher controlled, content selected
 - National norms for each Year

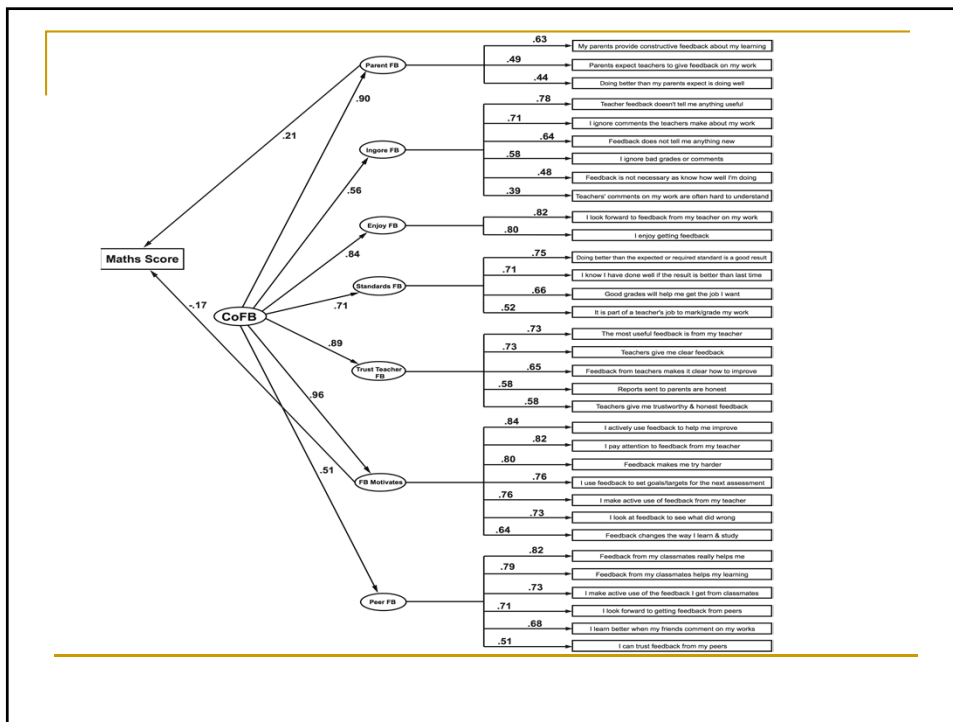
Conceptions of Feedback: measurement model

- 33 items
- Seven dimensions
 - **Parent feedback** (e.g. parents provide constructive feedback about my learning)
 - **Feedback is irrelevant/ignore** (e.g. I ignore bad comments/grades)
 - **Enjoy feedback** (e.g. I enjoy getting feedback)
 - **Feedback gives information about standards** (e.g. I know I have done well when the result is better than last time)
 - **Teachers give trustworthy feedback** (e.g. Teachers give me trustworthy & honest feedback)
 - **Feedback is motivating** (e.g. Feedback makes me try harder)
 - **Peer feedback** (e.g. Feedback from my classmates really helps me)
- Fit statistics good $\chi^2=1367.87$, $df=488$, $p<.001$, TLI=.90, CFI=.91, RMSEA=.054, Gamma=.97



Relationship of Conceptions to Mathematics Achievement

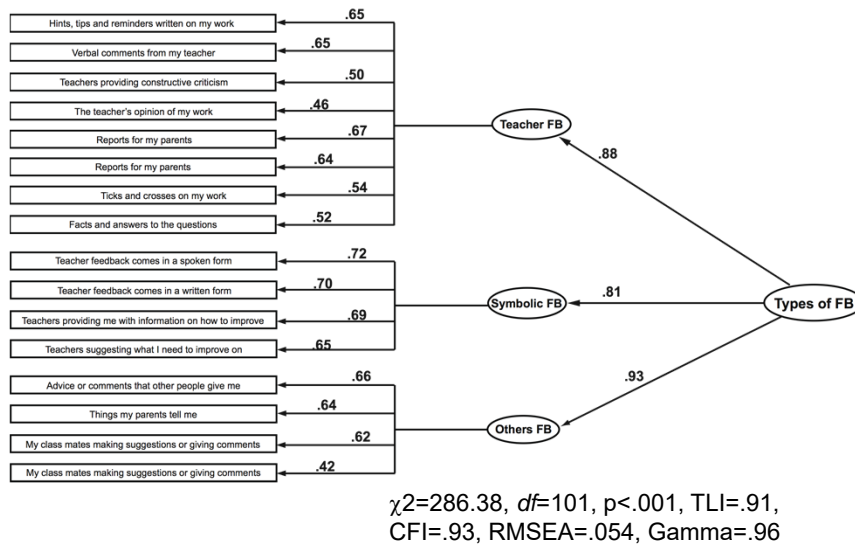
- Two significant predictors of mathematics achievement
 - Parental feedback
 - Feedback is motivating
- But ...
- Fit statistics: $\chi^2=1306.53$, $df=519$, $p<.001$, TLI=.90, CFI=.91, RMSEA=.053, Gamma=.96



What does this mean?

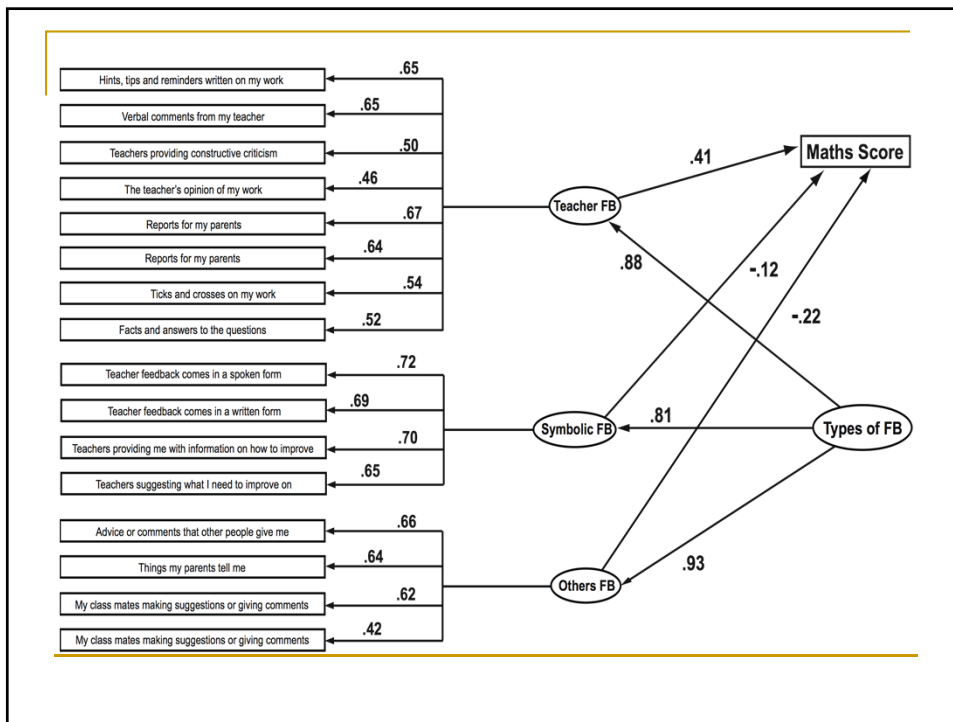
- Counter-intuitive? c.f. assessment **for** learning
- Perhaps high achievers already know how well they are doing, esp. in mathematics, while low achievers claim to use feedback to motivate/learn, but are ineffective
- Response certitude (Kulhavy & Stock, 1989) – i.e. feedback adds little
- Parents??
- Model explains just 1% of variance in mathematics achievement – so some way to go

Types of Feedback: measurement model

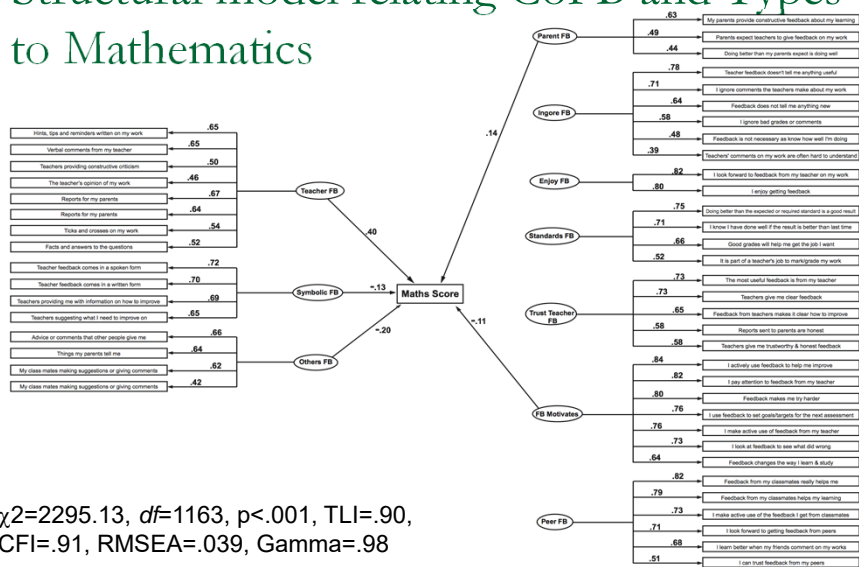


Relationship of Types to Mathematics Achievement

- All three dimensions significant predictors of mathematics achievement
- Teacher feedback positively ($\beta=.41$), the other two negatively: Symbolic ($\beta=-.12$) and Others ($\beta=-.22$)
- Good fit of data to model: $\chi^2=325.01$, $df=114$, $p<.001$, $TLI=.90$, $CFI=.93$, $RMSEA=.054$, $Gamma=.99$



Structural model relating CoFB and Types to Mathematics



$\chi^2=2295.13$, $df=1163$, $p<.001$, $TLI=.90$, $CFI=.91$, $RMSEA=.039$, $\text{Gamma}=.98$

Discussion and Implications

- Feedback accounts for a small portion of mathematics achievement
- TEACH → platform to build on (Hattie & Timperley, 2007)
- YOUR feedback is important however
- Tick and flick → **X**
- Peer and self assessment/feedback not significant
- Given what we know – about task, learner, timing and FB – may need more focused set of conceptions to gauge effect on learning

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