

The intervening role of assessment literacy in relationships between feedback literacy and self-regulation

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Abstract: Feedback literate students are more likely to generate internal feedback to monitor their progress towards learning goals and they may therefore exhibit greater self-regulatory skills. However, any relationships between feedback literacy (FL) and self-regulation (SR) may in fact be indirectly explained by assessment literacy (AL) or dependent on individuals having high levels of AL. Therefore, the current study investigated whether AL mediates and/or moderates any relationships between FL and SR. Questionnaire scales measuring FL, AL and SR were completed by 298 undergraduate students across multiple disciplines. Mediation analyses revealed that the relationship between feedback utility (i.e. the perception that feedback will be useful) and SR was fully mediated by the assessment for learning aspect of AL (i.e. the ability to use assessment tasks to augment or monitor learning). Moderation analyses indicated that the positive relationship between feedback social awareness (i.e. feedback being used to help individuals understand how they are perceived by others) and SR was only present when individuals had greater levels of the assessment for learning aspect of AL; this relationship was not present when scores on this aspect of AL were average or low. Findings are discussed in terms of how some relationships between FL and SR are either explained by AL or are dependent on greater levels of AL, but most aspects of FL still directly relate to SR.

Introduction

Students need to be receptive to using feedback in order to fully benefit from it. Students' overall receptivity to feedback is known as their feedback orientation (FO) (London & Smither, 2002), which is considered to consist of four sub-aspects, in addition to overall receptivity to feedback (FO-O) (Linderbaum & Levy, 2010): Utility (FO-U), which is the perception that feedback will be useful and will contribute to success; accountability (FO-A), which is an individual's sense of responsibility to act upon feedback; social awareness (FO-SA), which is the degree to which it is thought that feedback will help individuals understand how they are perceived by others; and feedback self-efficacy (FO-SE), which is an individual's belief in their ability to successfully use feedback to improve their work.

Students who are more receptive to feedback are considered to have greater feedback literacy (FL), which is the ability to know how to act upon feedback. Feedback literate students are more likely to generate internal feedback to monitor their progress towards achieving the objectives set as part of an assessment. This ability to monitor and use learning strategies is known as self-regulation (SR) (Zimmerman, 1990). Therefore, FL is expected to be positively related to SR.

The ability to proactively respond to feedback requires, among other phenomena, assessment literacy (AL) (Winstone, Nash, Parker, & Rowntree, 2017). AL is seen to encompass four sub-aspects (Smith, Worsfold, Davies, Fisher, & McPhail, 2013): the ability to use assessment tasks to augment or monitor learning (assessment for learning; AL-AL); the ability to understand the assessment process and criteria (understanding; AL-AU); the ability to judge one's own and others' work (judgement; AL-AJ); and perceptions about the minimum amount of effort needed to pass a task (minimum effort orientation; AL-MEU). Assessment literate students are able to self-assess whether assessment requirements are being met, which requires self-monitoring and goal setting skills (Panadero, Jonsson, & Botella, 2017). Thus, like FL, AL is likely to be positively related to SR.

Since students may need to already be assessment literate in order to develop FL, it could be the ability to self-assess, rather than use feedback, that leads to SR. Additionally, students who are feedback literate may only be able to generate internal feedback and self-regulate if they are assessment literate and therefore understand the requirements of a particular assessment. This means that AL may have an intervening role in any relationships between FL and SR, which might manifest in two ways.

Firstly, any relationships between FL and SR may actually be indirectly explained by AL (i.e. AL will act as a mediator). Secondly, it is possible that if relationships between FL and SR are explained by AL, these relationships may in fact be dependent on individuals having greater levels of AL (i.e. AL will act as a moderator). James and Brett (1984) note that the same variable can act as both a mediator and moderator in the same model, so the following research questions were addressed:

1. Are any relationships between FL and SR mediated by AL?
2. Does AL moderate any relationships between FL and SR, such that high AL is required in order for FL to positively predict SR?

Method

Participants

All first-year undergraduate students across biosciences, health sciences, psychology and veterinary medicine disciplines at the University of Surrey, UK were invited to participate and 298 students (61 males, 237 females, $M_{\text{age}} = 21.26$, $SD_{\text{age}} = 5.89$ years, age range: 18–48 years) took part.

Instruments

During their first semester at the university, participants completed an online demographic questionnaire and four scales, which were used to form mean scores. Scale 1 was an adapted version of the 20-item feedback orientation scale (Linderbaum & Levy, 2010) used to assess FL, and consisting of subscales for FO-U ($\alpha = .79$), FO-A ($\alpha = .64$), FO-SA ($\alpha = .79$) and FO-SE ($\alpha = .78$), as well as FO-O ($\alpha = .85$). Scale 2 was the 30-item assessment literacy questionnaire (Smith et al., 2013) used to assess AL, and consisting of subscales for AL-AL ($\alpha = .70$), AL-AU ($\alpha = .90$), AL-AJ ($\alpha = .69$) and AL-MEU ($\alpha = .55$). Scale 3 was the 12-item metacognitive self-regulation subscale ($\alpha = .74$) from the Motivated Strategies for Learning Questionnaire (Pintrich & de Groot, 1990) used to assess SR.

Results

Research question 1

Mediation analyses were performed using the PROCESS command on SPSS (Hayes, 2012) and all analyses met Baron and Kenny's (1986) requirements for mediating relationships to be tested. Most aspects of FL and AL were significantly positively correlated with SR, and some of the relationships between FL and SR were partially mediated by different aspects of AL. The relationship between FO-U and SR was significantly fully mediated by AL-AL (see Figure 1).

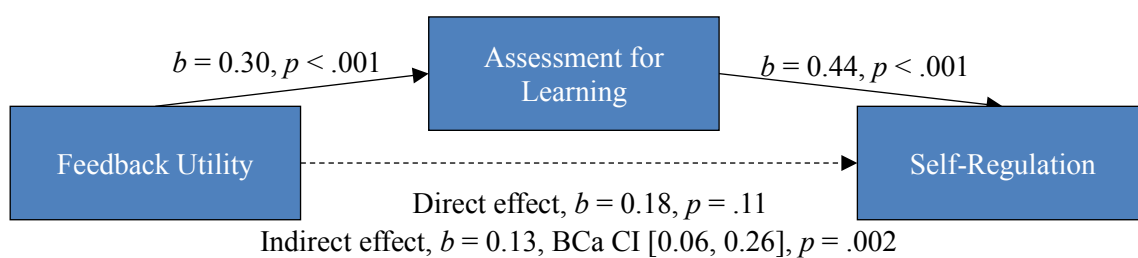


Figure 1. Mediating effect of AL-AL on the relationship between FO-U and SR

Research question 2

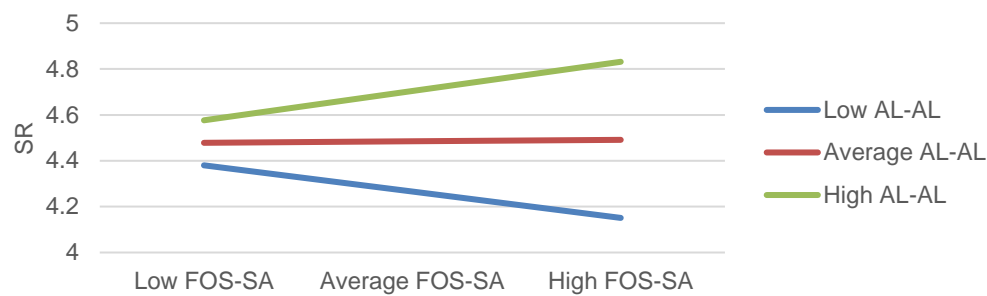


Figure 2. Simple slopes equations of the regression of FOS-SA on SR at three levels of AL-AL

All variables were centred, then moderation analyses were performed, again using the PROCESS command. There was a significant moderating effect of AL-AL on the relationship between FO-SA and SR, $b = 0.43$, BCa CI [0.09, 0.77], $t = 2.04$, $p = .02$. Examination of the simple slopes show that there were no significant relationships between FO-SA and SR when AL-AL was at low ($p = .14$) or average ($p = .90$) levels, but there was a significant positive relationship when levels of AL-AL were high, $b = 0.20$, BCa CI [0.01, 0.39], $t = 2.04$, $p = .04$ (see Figure 2).

Discussion

Mediation analyses showed that the relationship between FO-U and SR was indirectly explained by AL-AL, so when students have the perception that feedback will be useful to their success, increases in self-regulatory skills may actually be related to them having the ability to use assessment tasks to augment or monitor their learning. This emphasises the importance of transparency around assessment requirements, as espoused by (Evans, 2016); students need to have a clear understanding about what needs to be learned in order to self-regulate. However, the relationships between most aspects of FL and SR were not fully mediated by AL, so FL was still directly related to SR in most cases.

The positive relationship between FO-SA and SR was moderated by AL-AL, so students who feel that feedback will help them understand how they are perceived by others are more likely to engage in self-regulatory activities, but only when they have a greater ability to use assessment tasks to aid their learning. Unlike the finding above, the FL aspect here is directly related to SR, so this again shows that not all aspects of FL are specifically explained by AL.

Limitations of the current study include potential issues with social desirability and self-selection bias. However, a reasonable selection of students were recruited across many disciplines. The FO-A and AL-MEU subscales also had low Cronbach's alpha values, so the lack of internal consistency of these scales may have affected the results. The current study provides a greater understanding of the relationships between FL and SR by showing that AL does act as an intervening variable in some cases. Thus, any training to enhance students' FL could also look to improve their AL-AL.

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Acknowledgments

This work was supported by HEFCE through the Maximising Student Success through the development of self-regulation project award led by the third author, a collaboration between three UK Universities (grant code L16).