A questionnaire to assess students' beliefs about peer feedback

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Abstract

Research into students' peer feedback beliefs varies both thematically and in terms of approaches and outcomes. The current study describes the development of the concise though comprehensive Beliefs about Peer Feedback Questionnaire (BPFQ). Based on the different themes in the literature four scales were conceptualized. In separate exploratory (N=219) and confirmatory (N=121) studies, the structure of the questionnaire was explored and tested. The analyses confirmed the a priori conceptualized four scales: (1) students' valuation of peer feedback as an instructional method, (2) students' confidence in the quality and helpfulness of the feedback they provide to a peer, (3) students' confidence in the quality and helpfulness of the feedback they receive from their peers and (4) the extent to which students regard peer feedback as an important skill. The value of this practically applicable BPFQ is discussed with regard to future research into students' peer feedback beliefs and with regard to the insights it may offer higher education teaching staff.

Keywords: peer feedback; peer assessment; student beliefs; questionnaire

Introduction

Belief systems help a person to define and understand the world and one's place within that world, functioning as a lens through which new information is interpreted. Not surprisingly therefore, most definitions of 'beliefs' emphasize how these guide attitudes, perceptions and behavior (Pajares, 1992). Considering beliefs as a direct precursor to attitudes and behavior, (Ajzen, 1991; Ajzen & Fishbein, 2005), the current study describes the need for, and development of a questionnaire to assess higher education students' beliefs about peer feedback.

Given this interpretation of beliefs, students' educational beliefs are likely to influence both their perceptions and behavior during learning processes. For example, students' beliefs regarding the utility of a task may relate to their effort, time-on-task and performance (see Hulleman et al., 2008). In the context of peer feedback, this could mean that students' active engagement in the peer feedback process is contingent upon the degree to which they believe that peer feedback contributes to their learning and/or is an important skill to acquire. At the same time, students' peer feedback beliefs can also be regarded as an *outcome* of the peer feedback process (van Gennip et al., 2009). Here, a relevant overview is provided by van Zundert et al. (2010) Among others, their review focused on how student training and experience in peer feedback influence students' attitudes towards peer feedback. Van Zundert et al. found that twelve out of the fifteen studies reported positive attitudes towards peer feedback. At the same time, they also concluded that 'It is notable that, whereas the procedures varied tremendously, there was also an enormous variety in the instruments used to measure student attitudes' (p.277). In other words, a single comprehensive measure of students' peer feedback beliefs appears to be missing. Such a comprehensive measure seems imperative as peer feedback is frequently applied within higher education, and as the availability and user-friendliness of (often web-based) instruments increases. From an academic perspective, such a measure could facilitate the alignment of research findings. The resulting comparability of research findings across different contexts could allow for more generalizable conclusions with regard to students' beliefs about peer feedback

and the factors that influence those beliefs. From a practical perspective, such a measure could assist higher education teaching staff in understanding how their peer feedback practice affects students' experience of, and support for peer feedback as an instructional method. Therefore, the purpose of the current study is to develop and test such a practical, comprehensive instrument for investigating students' beliefs about peer feedback.

Themes of Student Beliefs in Prior Research

Across prior studies investigating students' beliefs in relation to peer feedback, different approaches have been adopted to address a variety of themes. Nevertheless, three broader themes can be distinguished in the literature. The first concerns students' beliefs about the value of peer feedback as an instructional method. The second and third theme concern students' confidence in either themselves or their peers as reliable assessors of quality. Within the concise, comprehensive instrument that is developed and tested in the current study, these three themes are conceptualized and integrated as separate constructs. To illustrate how these themes are derived from the literature, the following sections describe prior research approaches and –findings on these different aspects of students' peer feedback beliefs.

Peer feedback as an instructional method. Regarding students' valuation of peer feedback as an instructional method within their educational context, prior research tends to ask students questions such as how they value the peer feedback activity, whether they believe that students should be involved in assessing their peers and to the extent they believe that peer feedback contributes to their learning.

With respect to the involvement of students in formal feedback and the valuation of peer feedback activities, students generally appear to be positive. For example, McGarr and Clifford (2013) explicitly asked both undergraduate and postgraduate students how they valued peer assessment within their educational program. They found that both groups of students regarded peer assessment as valuable, although the postgraduate students valued it to a larger extent. Cheng and Warren (1997) found that 63.5% of the students believed

that students should take part in assessing their peers. Additionally, Li and Steckelberg (2004) asked students whether they believed peer assessment to be a worthwhile activity. On a scale of 1 (*strongly disagree*) to 5 (*strongly agree*), the 22 students scored a 4.18 on average, with all students scoring a 3 or higher. Also, Nicol et al. (2014) found students to hold positive beliefs with respect to peer feedback. After engaging in a peer feedback activity, which was the first such experience for most students, 86% reported to have a positive experience and 79% reported that they would definitely choose to participate again on future occasions. McCarthy (2017) also found that a majority of students was willing to receive peer feedback on future occasions, although here students were more positive towards future peer feedback in an online context (92% in favor) than in-class context (67% in favor). Other studies differentiated between students' beliefs regarding the provision and reception of peer feedback. For example, Palmer and Major (2008) found that students valued both aspects of the peer feedback process (scores ranging between 3.5 and 4.1 on a 5-point scale). In contrast to these generally positive findings, Liu and Carless (2006) findings were more ambiguous. These authors reported on a survey in which 1740 students were asked for their views on the purpose of assessment. Only 35% agreed with the notion that the development of 'students' ability to assess their classmates' should be a purpose of assessment, whereas 40% was neutral and 25% disagreed. Also, the study by Mulder et al. (2014) shows that, although students were relatively positive on forehand, the experience of the peer feedback process did lead to a small downward shift in their appreciation of peer feedback.

With respect to the impact of peer feedback, students generally appear to believe that it can contribute to their own learning. For example, Saito and Fujita (2004) asked 45 students how helpful they considered the comments and marks to be that they both *received from* and *provided to* peers. Scores ranged between 3.12 and 3.26 on a scale ranging from 1 (most negative) to 4 (most positive), suggesting that students regarded both aspects of the peer feedback process as contributing to their own learning. Similarly, 55% of the surveyed students in the study by Nicol et al. (2014) reported that they learned from

both the provision and reception of peer feedback. In the focus group data of the same study, however, students' beliefs with respect to the benefits of providing peer feedback appeared more salient, a finding that is corroborated by the in-depth case study by McConlogue (2015). Wen and Tsai (2006) also reported on the extent to which students believe peer feedback to contribute to their own learning. In their study, 280 students responded to statements such as 'peer assessment is helpful to my learning' and 'peer assessment activities can improve my skills' using a Likert scale that ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). Students responded moderately positive to these statements, although there was a notable variation in responses ($M = 3.36$, $SD = 0.89$ and $M = 3.55$, $SD = 0.92$, respectively). Taken together, students appear to hold at least moderately positive beliefs about the value of peer feedback as an instructional method.

Confidence. Across prior studies, issues revolving around students' confidence tended to focus on either the confidence they had in their own competence or that of their peers. More specifically, both themes generally addressed the extent to which students consider themselves or their peers as eligible assessors of quality and to what extent they believed their own or their peers' comments or ratings to be reliable and helpful.

With respect to students' beliefs about the eligibility of their peers as assessors of quality and the reliability and helpfulness of their peers' feedback, Wen and Tsai and colleagues (e.g., Wen & Tsai, 2006; Wen et al., 2006) asked students to respond to statements such as 'I think students are eligible to assess their classmate's performance' and 'I think students should not be responsible for making assessments'. Unfortunately, only mean scores were reported for the latter item. Students' average score on this item was 2.63 ($SD = 0.91$) on a 5-point scale, indicating a more or less even split with respect to students' general belief about the role and responsibility of students in formal feedback. Focusing more on the notion of reliability, Saito and Fujita (2004) directly asked students to what extent they considered their peers to be reliable raters. Students' average response to this question was 2.96 (SD = 0.60) on a 4-point scale, suggesting that students hold moderately positive beliefs about the reliability of their peers' ratings.

Students' confidence in their own competence as an assessor could de facto be considered as a context-specific self-efficacy beliefs (cf. Pajares, 1992). Sluijsmans et al. (2004) investigated such self-efficacy beliefs that students hold. In particular, they addressed students' self-perceived assessment skills through an eight-item scale, which included items such as 'I am able to analyze a product of a peer'. Across conditions and timing of measurements mean scores on this scale ranged between 3.69 and 3.89 on a 5-point Likert scale, suggesting that these students were fairly confident in their own competence. McGarr and Clifford (2013) also asked students whether they regarded themselves as having the knowledge and skills to assess their peers. On a scale ranging from 0 (*strongly agree*) to 11 (*strongly disagree*), the response of both undergraduate and postgraduate students indicated that these groups were relatively confident in this respect (on the reversely phrased item, both median scores = 8). In contrast, students in the study by Cheng and Warren (1997) were less confident in their own competence as assessor. In response to the question 'Do you think that you will make a fair and responsible assessment of your peers?', 36.5% said yes, 23.1% said no, and 40.4% was unsure. Possibly, the findings in these studies may differ as a result of differences in participant samples. In the Sluijsmans et al. (2004) study, participants were student-teachers, who are likely to have encountered peer feedback tasks to a larger extent than the first-year undergraduate students in the study by Cheng and Warren (1997). However, a multitude of contextual differences makes it difficult to directly compare these studies and interpret these varying outcomes.

Peer feedback skills as an important learning goal. In addition to the first three themes, we argue there is a fourth important aspect of students' peer feedback beliefs. This concerns the extent to which they regard peer feedback skills as being an important learning goal in themselves. Although we did not encounter empirical research that explicitly addressed this aspect of students' peer feedback beliefs, we do believe that the theoretical relevance of this factor warrants its inclusion. After all, students' engagement in the peer feedback process may be contingent on the extent to which they regard peer feedback skills as important to acquire or develop. According to expectancy-value

theory, for example, subjective task value influences the achievement-related choices students make (e.g., Wigfield & Eccles, 2000). In particular, the valued utility of a task appears to positively relate to students' effort, time-on-task and performance (e.g., Hulleman et al., 2008). In addition, higher education students are the future members of academic or other professional organizations. Consequently, being able to provide, receive and utilize feedback from peers could – or indeed *should* – in themselves be considered as important learning goals in higher education curricula (see also Cowan, 2010; Liu & Carless, 2006; Sadler, 2010; Sluijsmans et al., 2004; Topping, 2009).

Research Aims

The current study describes the development of the Beliefs about Peer Feedback Questionnaire (BPFQ) and has two central aims. Our first aim is to construct and validate a concise, comprehensive questionnaire that addresses the four following themes: students' valuation of peer feedback as an instructional method within their educational context, students' confidence in the quality and helpfulness of the feedback they provide to a peer, students' confidence in the quality and helpfulness of the feedback they receive from their peers and the extent to which students regard peer feedback skills in themselves as an important learning goal. In doing so, our second aim is to provide a practically applicable instrument to both academic researchers and higher education teaching staff that comprehensively assesses students' peer feedback beliefs.

Method

The BPFQ was constructed in three steps. In step one, a concise questionnaire was developed to address the four above mentioned themes, which were conceptualised in four scales: 'Valuation of peer feedback as an instructional method' (VIM; 4 items), 'Confidence in own peer feedback quality' (CO; 2 items), 'Confidence in quality of received peer feedback' (CR; 2 items) and 'Valuation of peer feedback as an important skill' (VPS; 3 items). Items of

the VIM scale related to, for example, Cheng and Warren (1997), Li and Steckelberg (2004) and Palmer and Major (2008). Items of the CO scale related to Sluijsmans et al. (2004) and Cheng and Warren (1997), whereas items of the CR scale were based on Wen and Tsai and colleagues (e.g., Wen & Tsai, 2006; Wen et al., 2006) and Saito and Fujita (2004). Finally, the VPS scale was designed to assess how important students regarded three different skills within the peer feedback process: providing peer feedback, dealing with critical peer feedback and utilizing it for improving one's work. These three were conceived as applicable and generalizable to future contexts in which students were likely to arrive at some point in time, either within their studies or during their subsequent careers. In step two an *exploratory* study was conducted. Using the data from this study, principal component analyses were performed to assess the initial component structure of the BPFQ. The first principal component analysis indicated that one item of the initial VIM scale ('Involving students in feedback through the use of peer feedback is instructive') did not uniformly load on one single component. This item was therefore omitted in all subsequent analyses. A second and third principal component analysis were performed on the remaining ten items to compare the proposed model with four scales to a model without a predefined number of components (cf. Visser-Wijnveen et al., 2016). In the third and final step, a *confirmatory* study was conducted. In particular, two confirmatory factor analyses were performed to compare the proposed model and the non-fixed model in terms of their fit on the data.

Participants and Data Collection Procedure

In the *exploratory* study, the questionnaire was completed by 220 second-year Biopharmaceutical Science students from a large research-intensive university in The Netherlands. The data for one student was dropped as cases with missing data were deleted list-wise. The mean age of the 219 included students was 19.51 years (SD = 1.39) with 140 students (63.9%) being female. From the very start of their undergraduate program, these students were introduced to peer feedback as an instructional method through explanation, instruction, exercises, and formative peer feedback activities. Over the course of the first

three semesters, the role of peer feedback gradually expanded, with the ultimate aim of the teaching staff being that students would perceive peer feedback as a normal and integral part of formal feedback. In the *confirmatory* study, the questionnaire was administered to a group of first-year students in Education and Child Studies (N=121). Their mean age was 19.48 years (*SD* = 1.62) with 114 students (94.2%) being female. These students had at least one prior experience with anonymous online peer feedback in the context of an academic writing assignment, and were expected to engage in two similar peer feedback activities in the semester that had just started. All students received the questionnaire during the starting lecture of a course. Questionnaires were administered in paper-and-pencil format and responses on all items were provided on a 5-point Likert scale. For the VIM and VPS scales, responses could range between 1 (*completely disagree*) and 5 (*completely agree*), whereas responses could range between 1 (*completely not applicable to me*) and 5 (*completely applicable to me*) for the CO and CR scales.

Analyses

Principal component analyses were performed using SPSS (v23) to empirically explore the underlying structure of the questionnaire. As we anticipated the conceptualized scales to be correlated, oblique (oblimin) rotation was applied. In the second study, confirmatory factor analyses were conducted to test the construct validity of the questionnaire. To this end, the 'lavaan' package (v0.5-23.1097; Rosseel, 2012) in R (v3.4.2; R Core team, 2017) was used. For the final scales emerging from the confirmatory analyses, internal reliability was computed as Cronbach's alpha and the relations between these scales were assessed in terms of Pearson correlations. The anonymized data and analyses (syntaxes) are available as supplemental online materials.

Results

Exploratory Analyses

In the exploratory study, two principal component analyses were conducted on the retained ten items. The a priori proposed model consisting of four fixed components (see Table 1) was compared to a model without a pre-fixed number of scales, effectively allowing a 'bottom-up' structure to emerge from the data. For both models, sampling appeared adequate (*Kaiser-Meyer-Olkin* measure of sampling adequacy = .69, individual items values ranging from .57 to .87) and inter-item correlations appeared sufficiently large (Bartlett's test of sphericity $\chi^2(45) = 630.97, p < .001$. The non-fixed principal component analyses provided a three-component structure, aggregating the VIM and CR scales (see Table 2). This bottom-up model suggests that the beliefs about the value of peer feedback as an instructional method (VIM) on the one hand and, on the other hand students' confidence in the quality of the feedback they receive from their peers (CR) tapped into the same conceptions that these first-year Biopharmaceutical Science students held. Comparing these two exploratory models, the total common variance was higher for the items in the proposed model with four fixed components (average of communalities being 0.718) than for the items in the non-fixed model with three components (average of communalities being 0.624).

Confirmatory Analyses and Scale Reliability

To test which of the models best fitted students' response patterns in the second student sample – the a priori proposed four component structure that was based on the themes in the literature, or the bottom-up three-component structure – confirmatory factor analyses were conducted on the sample of Education & Child Studies students to compare the two. As the principal component analyses generally indicated relatively low correlations between components, neither of the two confirmatory models included between-factor correlations. The proposed four factor model ($\chi^2(29) = 56.78$, $p = .002$, *TLI* = .91, *CFI* =

.94, *RMSEA* = .089 [.05, .12], *SRMR* = .06) appeared to fit the data better than the bottom-up 3 factor model that emerged in the exploratory phase ($\chi^2(32)$ = 117.69, $p < .001$, *TLI* = .75, *CFI* = .82, *RMSEA* = .15 [.12, .18], *SRMR* = .11). Although the difference in fit between these two models cannot be directly tested given that these models are not nested, the fit indices do seem to suggest that the construct validity of the a priori proposed four-factor model is superior to that of the three-factor model. In fact, the four-factor model's fit indices either adhere to or approach the cut-off values suggested by Hu and Bentler (1999), which may be considered relatively stringent (e.g., Perry et al., 2015). Therefore, the final BPFQ was considered to be best described in terms of the four scales that were conceptualized on forehand. The respective scale-reliabilities were acceptable (see Table 3), especially given the concise nature of the individual scales (cf. Cohen, 1988; Cortina, 1993; see Tables 3 and 4).

Discussion

The current study aimed to develop and test a concise and comprehensive questionnaire to assess students' peer feedback beliefs. A priori, the BPFQ was conceptualized to include four scales. Three scales were constructed to cover as many themes emerging from the literature: students' valuation of peer feedback as an instructional method, students' confidence in the quality and helpfulness of the feedback they *provide to* their peers, and students' confidence in the quality and helpfulness of the peer feedback they *receive*. In addition, the extent to which students regarded peer feedback skills as an important learning goal was considered an important aspect of their peer feedback beliefs. Hence, this was conceptualized as the fourth scale within the BPFQ. An exploratory and a confirmatory study were conducted on two separate groups of students. After one ambiguous item was omitted, both the exploratory and the confirmatory analyses confirmed these a priori conceptualized four scales. Hence, the final BPFQ consisted of ten items within four scales: students' valuation of peer feedback as an instructional method (VIM; 3 items), students' valuation of peer

Table 1. PCA component loadings ($N = 219$; four factors fixed a priori).

Scale	Items		Components			
			I	II	III	IV
VIM	Involving students in feedback through the use of peer feedback is meaningful		**.67**	-.21	.06	.11
	Peer feedback within [course] is useful		**.65**	-.13	.00	.22
	Feedback should only be provided by the teaching staff [*reversed*]		**.86**	.12	.00	-.11
Removed	*Involving students in feedback through the use of peer feedback is instructive*					
VPS	Being capable of giving constructive peer feedback is an important skill		.19	**-.70**	.01	-.08
	Being capable of dealing with critical peer feedback is an important skill		-.08	**-.87**	.04	-.03
	Being capable of improving one's work based on received peer feedback is an important skill		-.04	**-.86**	-.05	.03
CO	In general, I am confident that the peer feedback I provide to other students is of good quality		-.03	.05	**.92**	-.04
	In general, I am confident that the peer feedback I provide to other students helps them to improve their work		.03	-.04	**.86**	.05
CR	In general, I am confident that the peer feedback I receive from other students is of good quality		.02	.07	.04	**.87**
	In general, I am confident that the peer feedback I receive from other students helps me to improve my work		-.01	.00	.00	**.91**
Eigenvalue			3.08	2.09	1.07	0.94
% Variance explained			30.82	20.86	10.72	9.42
Scale reliability (Cronbach's α)			.67	.76	.73	.78
Component correlations		I		-.32	.19	.25
		II			-.03	-.06
		III				.35

Table 2. PCA component loadings ($N = 219$; no fixed factors).

Scale *(initial)*	Items	Components		
		I	II	III
VIM	Involving students in feedback through the use of peer feedback is meaningful	**.62**	-.34	.01
	Peer feedback within [course] is useful	**.69**	-.23	-.03
	Feedback should only be provided by the teaching staff [*reversed*]	**.58**	-.13	-.16
Removed	*Involving students in feedback through the use of peer feedback is instructive*			
VIM *(CR)*	In general, I am confident that the peer feedback I receive from other students is of good quality	**.68**	.30	.24
	In general, I am confident that the peer feedback I receive from other students helps me to improve my work	**.69**	.26	.22
VPS	Being capable of giving constructive peer feedback is an important skill	.12	**-.74**	.02
	Being capable of dealing with critical peer feedback is an important skill	-.05	**-.83**	.11
	Being capable of improving one's work based on received peer feedback is an important skill	.04	**-.80**	.02
CO	In general, I am confident that the peer feedback I provide to other students is of good quality	-.06	-.06	**.90**
	In general, I am confident that the peer feedback I provide to other students helps them to improve their work	.06	-.13	**.85**
Eigenvalue		3.08	2.09	1.07
% Variance explained		30.82	20.86	10.72
Scale reliability (Cronbach's α)		.70	.76	.73
Component correlations	I		-.21	.27
	II			.11

Note: VIM = Valuation of peer feedback as instructional method; CR = Confidence in quality of received peer feedback; CO = Confidence in own peer feedback quality; VPS = Valuation of peer feedback as an important skill.

feedback as an important skill (VPS; 3 items), students' confidence in the quality of the peer feedback they provide (CO; 2 items) and students' confidence in the quality of received peer feedback (CR; 2 items).

We believe the BPFQ is valuable both to academic researchers and higher education teaching staff. With respect to research into students' peer feedback beliefs, the availability of a comprehensive questionnaire could facilitate the alignment of research findings across contexts and disciplines, contributing to more coherent knowledge building in this area. For example, the consistent use of one instrument in multiple research contexts may shed light on how varying aspects of the design of peer feedback tasks (see Gielen et al., 2011, for an overview) influence students' peer feedback beliefs. In addition, the concise nature of the BPFQ could facilitate longitudinal research into students' peer feedback beliefs. In the higher education literature, peer feedback is increasingly recognized as important learning goal in itself (e.g., Cowan, 2010; Liu & Carless, 2006; Sadler, 2010; Sluijsmans et al., 2004). As students' peer feedback beliefs are likely to be influence through cumulative experiences over time, such longitudinal approaches are likely to involve multiple measurements. In such contexts, minimizing the burden on students' time seems highly desirable – if not pivotal – in making such repeated measures practically feasible. For the same reasons, the concise nature of the BPFQ may also assist higher education teaching staff in understanding how their peer feedback practice affects students' experience of, and support for peer feedback. In terms of students' experiences for example, the BPFQ could function as an evaluative measure that informs higher education staff on how to improve peer feedback within a course or curriculum. In terms of students' support for peer feedback, the BPFQ could for example be administered at the start of a course or semester. Having a priori information about students' peer feedback beliefs could provide teaching staff with the opportunity to address issues around students' confidence or their awareness of the importance of peer feedback skills. Especially in the case of student beliefs, it may be critical to act upon such information in a timely fashion given that students' early experiences can strongly influence judgments, which in turn become beliefs that may be relatively resistant to change (Pajares, 1992).

Table 3. BPFQ descriptive statistics, reliability indices and scale correlations

Scale	Items	Biopharmaceutical Science (N=219)						Education & Child Studies (N=121)					
		Descriptives			*Scale correlations*			*Descriptives*			*Scale correlations*		
		Mean	SD	α	VPS	CO	CR	Mean	SD	α	VPS	CO	CR
VIM	3	3.72	0.68	.67	.39**	.23**	.32**	3.84	0.76	.81	.32**	.23*	.35**
VPS	3	4.28	0.54	.76	-	.02	.02	4.23	0.51	.73	-	.29**	.29**
CO	2	3.49	0.68	.73		-	.37**	3.71	0.62	.82		-	.43**
CR	2	3.41	0.65	.78			-	3.64	0.67	.75			-

*Note: VIM = Valuation of peer feedback as instructional method; CR = Confidence in quality of received peer feedback; CO = Confidence in own peer feedback quality; VPS = Valuation of peer feedback as an important skill; * = p < .05 (two-tailed); ** = p ≤ .01 (two-tailed)*

Table 4. Final scales and items for the Beliefs about Peer Feedback Questionnaire

Scale	#	Item text
I		***Valuation of peer feedback as an instructional method ('VIM')***
	1	Involving students in feedback through the use of peer feedback is meaningful
	2	Peer feedback within [course] is useful
	3	Feedback should only be provided by the teaching staff [*reversed*]
II		***Valuation of peer feedback as an important skill ('VPS')***
	4	Being capable of giving constructive peer feedback is an important skill
	5	Being capable of dealing with critical peer feedback is an important skill
	6	Being capable of improving one's work based on received peer feedback is an important skill
III		***Confidence in own peer feedback quality ('CO')***
	7	In general, I am confident that the peer feedback I provide to other students is of good quality
	8	In general, I am confident that the peer feedback I provide to other students helps them to improve their work
IV		***Confidence in quality of received peer feedback ('CR')***
	9	In general, I am confident that the peer feedback I receive from other students is of good quality
	10	In general, I am confident that the peer feedback I receive from other students helps me to improve my work

Note: All items answered through 5-point Likert scale; For scales I and II, the labels range from 1 (completely disagree) to 5 (completely agree); For scales III and IV the labels range from 1 (completely not applicable to me) to 5 (completely applicable to me).

Limitations and Future Research

Some limitations need to be addressed. For one, additional sampling is required to confirm the external validity of the BPFQ. Although we purposefully sampled different groups of students for the exploratory and the confirmatory analyses, all participants in the current study were undergraduate students within the same university. As a result, their beliefs about peer feedback may be influenced by some common denominator, such as the general likelihood of being involved in peer feedback or the (digital) tools used to organize peer feedback. Hence, future applications within other higher education institutes and disciplines are needed to assess the extent to which the BPFQ continues to function consistently across contexts. Second, the BPFQ may not be exhaustive with respect to the potential variety of peer feedback beliefs that students' may hold. The four BPFQ scales were constructed based on the themes covered in prior research. Nevertheless, there may be aspects of students' peer feedback beliefs that the current BPFQ does not cover, for example because some of those aspects may currently be underrepresented in the literature. One way to address this could be through systematic, in-depth interviews with both graduate and undergraduate students from varying institutes and disciplines. Despite these inherent limitations, we are confident that this study provides a practical (concise) and comprehensive questionnaire to address students' beliefs about peer feedback. In particular, we demonstrated that the construct validity of the BPFQ is acceptable and that individual scale reliabilities are sufficient. We therefore believe that this questionnaire can contribute to higher education research by facilitating the comparability of research findings, and believe that it can help higher education teaching staff in understanding how their peer feedback practice affects students' experience of, and support for peer feedback.

Statement on Open Data

The anonymized data and syntaxes are accessible via the following link: [URL following upon publication]