The Role of Students' Perceived Motivation and Perceived Fairness of Peer Feedback for Learning Satisfaction in Online Learning Environments

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Abstract: In the literature, little is known regarding the role of students' perceived motivation and perceived fairness of peer feedback for their learning satisfaction, particularly in the context of argumentative essay writing in online learning environments. This study explores the effects of students' perceived motivation and perceived fairness of peer feedback on their learning satisfaction in the context of argumentative essay writing within an online learning context. In total, 135 undergraduate students from Wageningen University and research, the Netherlands participated in this study. An argumentative essay module was created and students were asked to provide peer feedback on their peers' essays. Data were collected from students about their perceived motivation, perceived fairness of peer feedback, and learning satisfaction. The results showed that students' perceived motivation and perceived fairness of peer feedback affect their learning satisfaction. This study adds to our understanding of the role of perceived motivation and perceived fairness of peer feedback in online learning environments, particularly in the context of argumentative essay writing in higher education.

Keywords: Learning Satisfaction, Online Learning, Peer Feedback, Perceived Fairness, Perceived Motivation

Introduction

Peer feedback is an effective learning strategy that can be applied for different complex learning tasks in higher education (Liu & Carless, 2006; Noroozi et al., 2021). For large-size online classes where teachers can not provide individualized feedback due to high workload, peer feedback is crucial for engaging students in the

learning processes and for active learning (Noroozi et al., 2022; Shahali Zadeh et al., 2016). Studies have shown that the use of peer feedback in online classes is increasing as the evidence has shown positive impacts of peer feedback on students' learning (Hebebci et al., 2020; Li et al., 2010; Noroozi & Hatami, 2019), satisfaction (Xiao & Lucking, 2008), and engagement (mulder et al., 2014). Involving in a peer feedback activity provides an opportunity for students to make use of their higher-order thinking skills such as critical thinking, analysis, and evaluation (Latifi et al., 2021; Nilson, 2003). This means that students are encouraged to read their peers' work critically, analyze the work to identify the gaps and problems in their peers' work, evaluate the quality of the work, and suggest solutions for further improvements to their peers' work (Fang et al., 2021; Latifi & Noroozi, 2021). Although using peer feedback has value for online classes, its effectiveness also depends on how students perceive peer feedback (Huisman et al., 2018). Studies have shown that if students do not perceive peer feedback as a useful activity and if they do not perceive their peers as knowledgeable and reliable feedback providers, they are less likely to uptake feedback and implement it in their work (Harks et al., 2014; Noroozi & Mulder, 2017; Rakoczy et al., 2019). In addition, students' satisfaction with peer feedback plays an important role to deliver effective peer feedback (Mercader et al., 2020). If students are not satisfied with peer feedback, they might be unwilling to implement it in their work. Although prior studies have investigated the role of perceived usefulness of peer feedback in students' learning satisfaction, it does not provide enough evidence of how students' different perceptions of peer feedback including the perceived motivation of peer feedback and the perceived fairness of peer feedback influence their learning satisfaction within online learning contexts. Therefore, this study seeks to address this issue by answering the following research questions:

- RQ1. To what extent do students' perceived motivation of peer feedback affect their learning satisfaction in online learning environments?
- RQ2. To what extent do students' perceived fairness of peer feedback affect their learning satisfaction in online learning environments?

Method

Context And Participants

This research was conducted as part of a larger project at Wageningen University and research. For this study, 101 undergraduate students (female: n=70, 69%; male: n=31, 31%) from the environmental science domain participated. A module called "*argumentative essay writing*" was designed and embedded in the course on the brightspace platform. The students were required to follow the module in three weeks. In the first weeks, students were required to write an argumentative essay. In the second week, students were asked to provide feedback on two peers' argumentative essays. In the third week, students were asked to revise their original argumentative essay based on the received peer feedback and fill out the survey about their perceived motivation of peer feedback, perceived fairness of peer feedback, and learning satisfaction. To comply with ethical norms, participants were informed about the study setup of the course. The social scieces ethics committee at Wageningen University and research also gave their approval to this project.

Measurements

Students' perceived motivation of peer feedback was measured through five items (*e.g., i enjoyed giving feedback to my peers' works*). Students' perceived fairness of peer feedback was measured through four items (*e.g., the feedback i received from my peers on my argumentative essay was fair*). All items were designed based on a five-point likert scale from *"strongly disagree=1,"* to *"strongly agree=5"*. Items of perceived motivation and perceived fairness of peer feedback were reported to be reliable (*cronbach a=0.80, and a=0.76*). To assess students' learning satisfaction, a questionnaire adjusted by noroozi et al. (2017) was used. This questionnaire was made of 24 items on a five-point likert scale ranging from "*almost never true=1*," to "*almost always true=5*". The reliability coefficient was found to be high (*cronbach α=0.84*). A simple linear regression test was used to answer the research questions. In addition, the kolmogorov-smirnov test was used to determine data normality. It was determined that the data were normally distributed (*p>0.05*) after assessing the scores using the kolmogorov-smirnov tests.

Results

The results for the first research question showed that students' perceived motivation of peer feedback affects their learning satisfaction (*f(1, 77)=16.26, p<0.01, r^2=0.17*). Also, the coefficient of determination (r^2) showed that 17% of the dependent variable changes (learning satisfaction) are affected by students' perceived motivation of peer feedback.
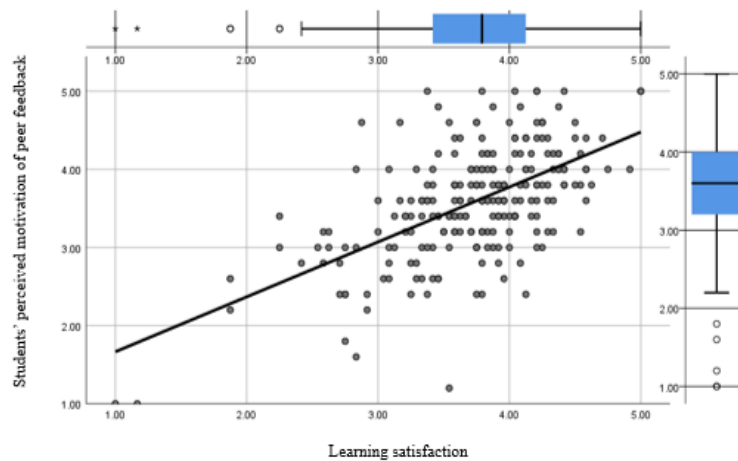

Figure 1. The Effects of Students' Perceived Motivation of Peer Feedback on Learning Satisfaction

The results for the second research question showed that students' perceived fairness of peer feedback affects learning satisfaction (*f(1, 77)=8.45, p<0.01, r^2=0.10*). Also, the coefficient of determination (r^2) showed that 10% of the dependent variable changes (learning satisfaction) are affected by students' perceived fairness of peer feedback.
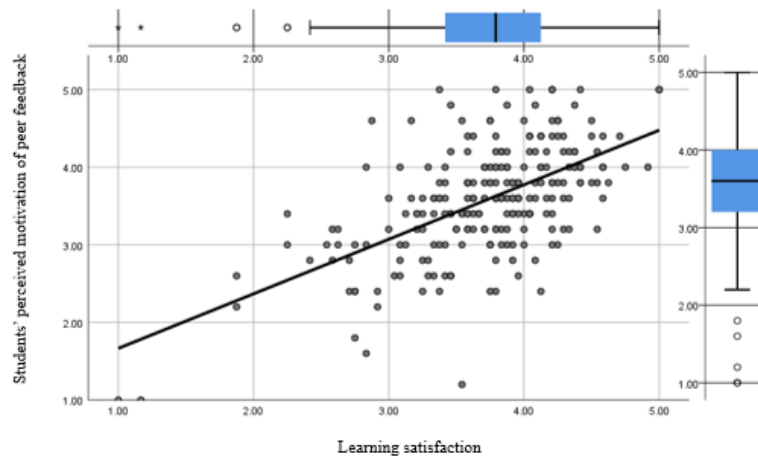
Figure 2. The Effects of Students' Perceived Fairness of Peer Feedback on Learning Satisfaction

Discussion and Conclusion

Our finding showed that learning satisfaction is affected by students' perceived motivation of peer feedback and perceived fairness of peer feedback. This means that the more students are motivated by peer feedback, and the more students perceive the received feedback as a fair critical input, the more they are expected to be satisfied with their learning. This finding is supported by some previous studies where a relationship between peer feedback, students' satisfaction, and their attitudes toward peer feedback were reported (Harks et al., 2014; Noroozi & Mulder, 2017; Rakoczy et al., 2019). One reason for such findings can be related to the fact that if the peer feedback process is enjoyable for students and motivated them, and if students think that the feedback they have received is fair, therefore they are more willing to be actively involved in the learning process and learn from peers which can result in a higher level of satisfaction. In addition, in such situations, it is expected that students feel free to provide and accept critical feedback which can lead to effective learning and high satisfaction.

This study provides insight into the role of perceived motivation and perceived fairness of peer feedback in learning satisfaction within online learning contexts. Students' satisfaction with learning through peer feedback is influenced by their perceptions of peer feedback as a motivational and fair learning activity. Therefore, teachers should consider students' perceived motivation and fairness of peer feedback before inviting them to provide feedback in order to keep students satisfied with the learning process.

Acknowledgments

References

Fang, J. W., Chang, S. C., Hwang, G. J., & Yang, G. (2021). An Online Collaborative Peer-Assessment Approach To Strengthening Pre-Service Teachers' Digital Content Development Competence And Higher-Order Thinking Tendency. *Educational Technology Research And Development*, *69*(2), 1155-1181. Https://Doi.Org/10.1007/S11423-021-09990-7

Harks, B., Rakoczy, K., Hattie, J., Besser, M., & Klieme, E. (2014). The Effects Of Feedback On Achievement, İnterest And Self-Evaluation: The Role Of Feedback's Perceived Usefulness. *Educational Psychology*, 34(3), 269-290. Https://Doi.Org/10.1080/01443410.2013.785384

Hebebci, M. T., Bertiz, Y., & Alan, S. (2020). Investigation of views of students and teachers on distance education practices during the Coronavirus (COVID-19) Pandemic. *International Journal of Technology in Education and Science*, *4*(4), 267-282.

Huisman, B., Saab, N., Van Driel, J., & Van Den Broek, P. (2018). Peer Feedback On Academic Writing: Undergraduate Students' Peer Feedback Role, Peer Feedback Perceptions And Essay Performance. *Assessment & Evaluation İn Higher Education*, 43(6), 955-968. Https://Doi.Org/10.1080/02602938.2018.1424318

Latifi, S., & Noroozi, O. (2021). Supporting Argumentative Essay Writing Through An Online Supported Peer-Review Script. *Innovations İn Education And Teaching International*, *58*(5), 501-511. Https://Doi.Org/10.1080/14703297.2021.1961097

Latifi, S., Noroozi, O., & Talaee, E. (2021). Peer Feedback Or Peer Feedforward? Enhancing Students' Argumentative Peer Learning Processes And Outcomes. *British Journal Of Educational Technology*, *52*(2), 768-784. Https://Doi.Org/10.1111/Bjet.13054

Li, L., Liu, X., & Steckelberg, A. L. (2010). Assessor Or Assessee: How Student Learning İmproves By Giving And Receiving Peer Feedback. *British Journal Of Educational Technology*, 41(3), 525-536. Https://Doi.Org/10.1111/J.1467-8535.2009.00968.X

Liu, N. F., & Carless, D. (2006). Peer Feedback: The Learning Element Of Peer Assessment. *Teaching İn Higher Education*, *11*(3), 279-290. Https://Doi.Org/10.1080/13562510600680582

Mercader, C., Ion, G., & Díaz-Vicario, A. (2020). Factors İnfluencing Students' Peer Feedback Uptake: İnstructional Design Matters. *Assessment & Evaluation İn Higher Education*, 45(8), 1169-1180. Https://Doi.Org/10.1080/02602938.2020.1726283

Mulder, R., Baik, C., Naylor, R., & Pearce, J. (2014). How Does Student Peer Review İnfluence Perceptions, Engagement And Academic Outcomes? A Case Study. *Assessment & Evaluation İn Higher Education*, *39*(6), 657-677. Https://Doi.Org/10.1080/02602938.2013.860421

Nilson, L. B. (2003). Improving Student Peer Feedback. *College Teaching*, 51(1), 34-38. Https://Doi.Org/10.1080/87567550309596408

Noroozi, O., & Hatami, J. (2019). The Effects Of Online Peer Feedback And Epistemic Beliefs On Students' Argumentation-Based Learning. *Innovations İn Education And Teaching International, 56(5), 548-557.* Https://Doi.Org/10.1080/14703297.2018.1431143

Noroozi, O., & Mulder, M. (2017). Design And Evaluation Of A Digital Module With Guided Peer Feedback For Student Learning Biotechnology And Molecular Life Sciences, Attitudinal Change, And Satisfaction. *Biochemistry And Molecular Biology Education*, *45*(1), 31-39. Https://Doi.Org/10.1002/Bmb.20981

Noroozi, O., Banihashem S. K., & Biemans, H. J. A. (2021). The Role Of Education Level İn Online Peer Feedback Performance For Argumentative Essay Writing. In S. Jackowicz & O. T. Ozturk (Eds.), *Proceedings Of ICSES 2021-- International Conference On Studies İn Education And Social Sciences* (Pp. 135-140), Antalya, TURKEY. ISTES Organization.

Noroozi, O., Banihashem, S. K., Taghizadeh Kerman, N., Parvaneh Akhteh Khaneh, M., Babayi, M., Ashrafi, H., & Biemans, H. J. (2022). Gender Differences İn Students' Argumentative Essay Writing, Peer Review Performance And Uptake İn Online Learning Environments. *Interactive Learning Environments*, 1-15. Https://Doi.Org/10.1080/10494820.2022.2034887

Rakoczy, K., Pinger, P., Hochweber, J., Klieme, E., Schütze, B., & Besser, M. (2019). Formative Assessment İn Mathematics: Mediated By Feedback's Perceived Usefulness And Students' Self-Efficacy. *Learning And Instruction*, *60*, 154-165. Https://Doi.Org/10.1016/J.Learninstruc.2018.01.004

Shahali Zadeh, M., Dehghani, S., Banihashem, S. K., & Rahimi, A. (2016). Designing And İmplementation Of Blending Of Problem Solving İnstructional Model With Constructivism's Principles And The Study Of İts Effect On Learning And Creative Thinking. *Journal Of Innovation And Creativity İn Human Science*, 5(3), 83-117. Https://Journal.Bpj.İr/Article_522444.Html?Lang=En

Xiao, Y., & Lucking, R. (2008). The İmpact Of Two Types Of Peer Assessment On Students' Performance And Satisfaction Within A Wiki Environment. *The Internet And Higher Education*, *11*(3-4), 186-193. Https://Doi.Org/10.1016/J.İheduc.2008.06.005