

## Appendix – questionnaire

**Do Students Reflect on Sustainability? Student Development of Competencies for Sustainability in Project-Based Learning**

T. Bolstad, L. Lundheim, M. Orlandic, and A. Strømberg, Department of Electronic Systems, NTNU  
 P. H. Zimmermann, Department of Computer Science, NTNU

**The questions used in the student survey.** The questions have been translated to English from Norwegian after the survey was held. The Norwegian wording of the first 8 points in question 7 is based on the Norwegian translation of UNESCO's key competencies for sustainability on page 131 of the report in reference [3] in the article.

#	Question	Possible answers
1	I consent to my answers being used in this research project.	Yes / No
2	Which innovation project were you a part of?	Miljøpakken i Trondheim kommune (2020), Norges Curlingforbund (2019) / TrønderEnergi (2018) / Vannovervåking med Miljøetaten i Trondheim kommune (2017) / Adresseavisen (2016) / Vitensenteret (2015) / Kystlaget i Trondheim (2014)
3	Would you say that the innovation project you were a part of was related to sustainability?	Yes / No
4a	(If yes to 3) I experienced the project being related to sustainability as <ul style="list-style-type: none"> <li>• Generally positive</li> <li>• Motivating</li> </ul>	7 point Likert scale 1: To a very small degree 7: To a very large degree
4b	(If no to 3) I experienced the project not being related to sustainability as <ul style="list-style-type: none"> <li>• Generally positive</li> <li>• Motivating</li> </ul>	7 point Likert scale 1: To a very small degree 7: To a very large degree
5	Sustainability was an element that was taken into account or reflected upon in my group's <ul style="list-style-type: none"> <li>• Problem formulation</li> <li>• Design process</li> <li>• Implementation phase</li> <li>• Verification and test phase</li> <li>• End results</li> </ul>	7 point Likert scale 1: To a very small degree 7: To a very large degree
6	I learnt something about sustainability in this course.	7 point Likert scale 1: To a very small degree 7: To a very large degree
7	During the project I got better at <ul style="list-style-type: none"> <li>• Reflecting on norms and values that affect peoples' actions</li> <li>• Assessing dilemmas, contradictions, and trade-offs</li> <li>• Questioning norms, practices, opinions in society</li> <li>• Critically reflecting on my values, perceptions and actions</li> </ul>	7 point Likert scale 1: To a very small degree 7: To a very large degree

	<ul style="list-style-type: none"> <li>• Taking a position in the sustainability discourse</li> <li>• Reflecting on my role in the local community and global society</li> <li>• Evaluating and motivating my own actions</li> <li>• Dealing with feelings and desires</li> <li>• Breaking down complex problems into simpler parts</li> <li>• Collaborating with others</li> <li>• Planning an extended complex project</li> <li>• Completing an extended complex project</li> </ul>	
8	How much do you care about sustainability and sustainable development?	7 point Likert scale 1: To a very small degree 7: To a very large degree
9	<p>Take a position on the statements below</p> <ul style="list-style-type: none"> <li>• It is important that sustainability is a part of education in general.</li> <li>• It is important that sustainability is a part of education at Elsys.</li> <li>• There is a sufficient focus on sustainability at Elsys as a whole.</li> <li>• What exists of sustainability focus at Elsys is done in the right way.</li> <li>• An engineer should consider the sustainability consequences of their work.</li> </ul>	7 point Likert scale 1: Strongly disagree 7: Strongly agree
10	What do you think about when you hear the terms sustainability and sustainable development?	(Selection of more than one alternative is possible) Economic sustainability / Environmental sustainability / Social sustainability
11	Gender	Male / Female / Do not wish to answer