UiT The Arctic University of Norway

The 5th World Conference on Research in Teaching and Education (WORLDTE)
28th-30th of October 2022
Milan

Interactive teaching in an international preparatory language program; promoting some of the 21st century skills

The northern light over Narvik city Photo: Jan-Arne Pettersen

Kaori Takamine
kaori.takamine@uit.no
Department of Automation and Process Engineering

Randi Bolle Eilertsen
randi.eilertsen@uit.no
Department of Industrial Engineering

Marianne Holbø
Department of Industrial Engineering

Tone Harr Dybdahl
Department of Industrial Engineering

Introduction

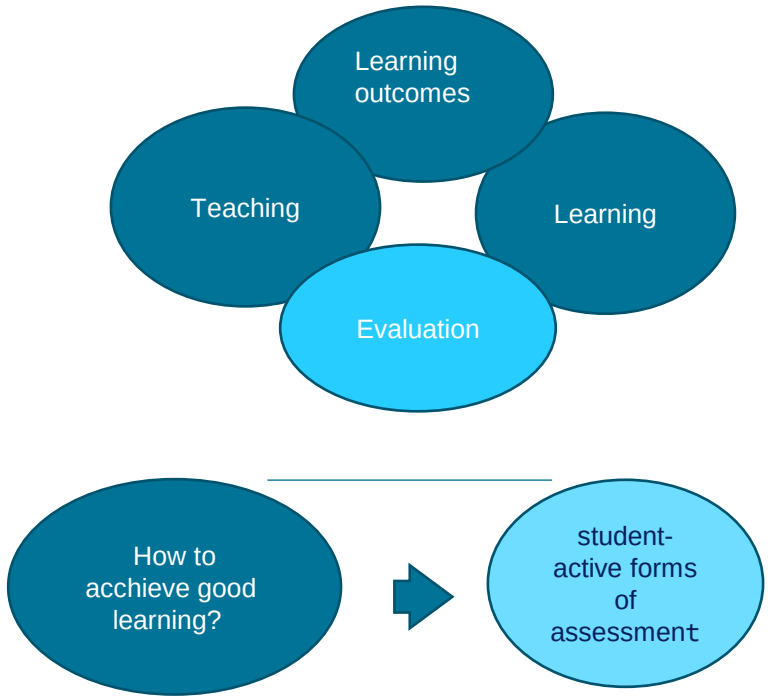
- The future of engineering education may be required to equip students with the 21st century skills (Voogt and Roblin 2012, Samavedham and Ragupathi 2012)
- Preparatory language programs for engineering studies must help students to develop such skills.
- Norwegian Language and Society for Foreign Students (NSU) at UiT The Arctic University of Norway (UiT) adopts student-active teaching methods that help future engineering students enhance some of the 21st century skills in addition to Norwegian language proficiency.
- Goal: Evaluation of the impact of NSU's teaching methods on the students' enhancement of such skills.
  - Students have developed some learning skills (Partnership for 21st Century, 2008) such as critical thinking, effective communication skills and collaboration skills.
  - Our teaching method enhances the students' engagement in the learning activities in the program.

Background – about NSU

- A one-year preparatory Norwegian language program for engineering studies at UiT (60 ECTS)
  - More than 300 applicants for 40 study places
  - More than 25 nations are melting together
  - Most of them continue studying at UiT/work in Norway
- The goal: B2 Norwegian language proficiency and knowledge of Norwegian society and culture.
- The components: Norwegian grammar and phonetics, society and politics and culture and literature.
- The teaching methods: a synthesis of student active learning methods, including study groups, formative peer-assessment and project-based learning.
- Evaluation: portfolio assessment and written and oral exams

Photo: Anna Ivanova

Background – Teaching methods in NSU



- Biggs (1999) Constructive Alignment
- Nicol & Macfarlane-Dick, 2006: Formative assessment and self-regulated learning

Student-active learning

- **Collaboration learning** "study groups"
  - Van der Bossche, et al, 2006, Social and Cognitive Factors Driving Teamwork in Collaborative Learning Environments: Team Learning Beliefs and Behaviors.
- **Formative peer assessment**
  - Enhance learner's autonomy, critical thinking and collaboration (e.g. Topping 1998, Lynch et al, 2012, Carnell 2016).
  - Positive effects on writing performance. (e.g. Min 2005, Lundstrom & Baker, 2009, Zhao 2014)
- **Project-based learning**
  - Promotes learner's autonomy (e.g. Pettersen 2005)
  - Enhance students' writing ability (e.g. Hasani et al. 2017).

Method: Student questionnaires

- 2 questionnaires
  - Questionnaire 1: about formative peer assessment in March 2022
  - Questionnaire 2: the final student evaluation in May 2022

- Anonymous online questionnaire

- 30 questions that ask about
  - Students' evaluation of learning activities
  - Students' evaluation of effects of learning activities on their learning

- 83,3 % of 18 students answered.

Results and discussion questionnaire 1

- 83,3 % believe they’ve learnt from peer-assessment. 16.7 % are not sure.

- **Students’ enhanced critical thinking / Higher-order thinking skills**
  - *"We may learn word order, grammar and how to write a text".*
  - *" I can learn different things (from peers’ comments) such as logical markers, grammar, new words, etc."*
  - *"I think I understand and learn better when other students point out my mistakes".*
- ***Students are more aware of their own learning (and develop their learning strategy)***
  - *"They (peers’ comments) gave me new information about which part of my text I should be concenterating on."*
  - *(from peers’ comments) "I have learned that a text must be double checked on different days (many times)."*
- **Increased students’ motivation and engagement**
  - *"The comments were very positive and told me how to improve in the future."*
  - *"This is part of learning, and quite good that others than the teacher may correct my mistakes, and propose other ways of writing."*

FPA may enhance critical thinking and students’ engagement in their own learning

Results and discussion questionnaire 2

- Students meant that oral exercises in study groups were very helpful for their learning.
  - *"Oral exercises were good and helped to improve my grammar and communication skills"*
  - Enhanced communication skills.
  - Collaboration skills

- **53.3 % students think that they have achieved the results (knowledge, skills and grade) they wanted.**
  - *"Good teachers and variation in learning methods"*
  - *"Very good interactive language program at B2 level"*
  - *"Good social environment and you get to know all the teachers and students. One feels like a family"*
  - *"High quality in working with project work"*
  - *"Study groups were useful to me to repeat the grammar and vocabulary. Many and good exercises"*
  - *"Collaboration in groups was a new experience for me. I learned something new!"*
  - *"Cooperation with classmates"*

Collaboration learning may help students to develop their communication and collaboration skills. NSU's learning methods increase students' engagement in learning

Conclusion

- According to questionnaire 1
  - In accordance with previous studies (e.g. Topping 1998, Lundstrom & Baker, 2009, Zhao 2014):
  - Promoted writing skills
  - Critical thinking
  - Enhanced engagement / learning strategy

- According to questionnaire 2
  - Communication skills
  - Collaboration skills
  - Students' satisfaction / increased engagement
  - Attained learning outcomes

- With these skills, students may be better prepared for their future engineering studies.

- The student-active learning methods adopted in NSU may be transferable to preparatory language courses in other countries.

Photo: Anna Ivanova

References

Biggs, J. (1999), What the Student Does: teaching for enhanced learning. *Higher Education Research & Development*, vol.18/1, ss.57-75.

Carnell, B. (2016), 'Aiming for autonomy: formative peer assessment in a final-year undergraduate course', *Assessment & Evaluation in Higher Education*, 41:8, 1269-1283

Hasani, A., Hendrayana, A., & Senjaya, A. (2017). Using project-based learning in writing an educational article: An experience report. Universal Journal of Educational Research, 5(6), 960–964

Lundstrom, K., & W. Baker. (2009). To give better than to receive: The benefits of peer review to the reviewer's own writing. *Journal of Second Language Writing*, 18, 30–43.

Lynch, R, P. Mannix McNamara and N. Seery. (2012). 'Promoting deep learning in a teacher education programme through self- and peer-assessment and feedback', *European Journal of Teacher Education*, 35:2:179-197

Min, H. (2005). Training students to become successful peer reviewers. *System: An International Journal of Educational Technology and Applied Linguistics*, *33*(2), 293-308. Retrieved from http://search.proquest.com/docview/61925306?accountid=11162

Nicol, D. & Macfarlane-Dick, D. (2006). Formative assessment and self-regulated learning: a model and seven principles and good feedback practice

Pettersen, R. (2005). *Kvalitetslæring i høgere utdanning: innføring i problem- og praksisbasert didaktikk.* Oslo: Universitetsforlaget.

Topping, K. (1998). “Peer Assessment Between Students in Colleges and Universities.” *Review of Educational Research* 68: 249–276. doi:10.3102/00346543068003249.

Partnership for 21st century skills. (2008). 21st century skills, education & competitiveness: A resource and policy guide. Washington: Author. P21 | Battelle for Kids

Samavedham, K.L. and Ragupathi, K. (2012). “*Facilitating 21st century skills in engineering students*”, The Journal of Engineering Education, Vol. 26 No. 1, pp. 37-49.

van den Bossche, P. G.C., Gijselaers, W. H., Segers, M. S. R. & P. A. Kirschner. (2006). Social and Cognitive Factors Driving Teamwork in Collaborative Learning Enviroments: Team Learning Beliefs and Behaviors, *Small group research*, Vol.37 (5), p.490-521:

Voogt, J., & Roblin, N. P. (2012). A comparative analysis of international frameworks ¨for 21st century competences: Implications for national curriculum policies. Journal of Curriculum Studies, 44(3), 299e321. http://dx.doi.org/10.1080/00220272.2012.668938.

Zhao, H. (2014). Investigating teacher-supported peer assessment for EFL writing. *ELT Journal*, 68(2). Doi:10.1093/elt/ccto68

Down-hill skiing in the dark season in Narvik.

Photo: Jan-Arne Pettersen