

Litterature review af peer assessment i MOOCs

Følgende er et literature review foretaget for at finde frem til hvilken nyere forskning og hvilke erfaringer der eksisterer omkring anvendelse af peer assessment i MOOCs. Litterature reviewet er foretaget gennem systematisk søgning i tre store artikeldatabaser, henholdsvis Proquest, Science Direct og Scopus, hvor jeg har identificeret disse tre databaser til at indeholde forskningsartikler der er relaterede til MOOCs. Søgeordene er som følgende:

- MOOC AND Peer assessment
- MOOCs AND Peer assessment
- MOOC AND Peer grading
- MOOCs AND Peer grading

Søgningen er indskrænket til kun at indeholde litteratur der er peer-reviewet, dette med henblik på at sikre litteraturens kvalitet og reliabilitet. Dertil vil søgningen kun søge efter litteratur som er publiceret på engelsk, og som er publiceret efter år 2012. Søgning vil blive foretaget i *abstracts*.

Søgeresultater

Ved at følge den ovenstående søgestrategi havnede søgeresultatet på halvtreds artikler. Artiklerne er gennemgåede for relevans og duplikering, hvilket resulterede i otte tilbageværende artikler.

Overblik over artiklerne

Til at danne et overblik over de udvalgte artikler er disse opstillet i en tabel der fremstår nedenfor. Tabellen indeholder information relateret til de valgte artikler.

Author(s)	Publication date	Title
Admiraal, W., Huisman, B., Olga, P.	April 2015	Assessment in Massive Open Online Courses
Canelas, D.A., Clark, C.R., Comer, D.K.	November 2014	Writing to Learn and Learning to Write across the disciplines: Peer-to-Peer Writing in Introductory-Level MOOCs
Forsey, M., Glance, D.G., Riley, M.	May 2013	The pedagogical foundations of massive open online courses
Chen, D., Feng, Y., Jiang, J., Yu, J., Zhao, Z.	December 2014	Does MOOC Really Work Effectively
Eimler, S. C., Krämer, N.C., Neubaum, G., Wichmann, A.	August 2014	Investigating Incentives for Students to Provide Peer Feedback in a Semi-Open Online Course: An Experimental Study

Alonso-Betanzos, A., Bahamonde, A., Díes, J., Luaces, O., Troncoso, A.	May 2015	A factorization approach to evaluate open-response assignments in MOOCs using preference learning on peer assessments
Luo, H., Park, J., Robinson, A.C.	July 2014	Peer Grading in a MOOC: Reliability, Validity and Perceived Effects
Suen, Hoi K.	July, 2014	Peer Assessment for Massive Open Online Courses (MOOCs)

Kritisk gennemgang

For at danne en forståelse for- og et overblik over hver enkel artikel, dette med henblik på at kunne sammenligne artiklerne med hinanden, er disse analyserede. Analysen fremgår i den nedenstående tabel, der indeholder artiklernes problemformuleringer og forskningstilgange.

Author(s)	Research Question(s)	Research Approach
Admiraal, W., Huisman, B., Olga, P.	<p>1) What is the relationship between self- and peer assessment and quizzes?</p> <p>2) To what extent do self- and peer assessment and quizzes explain the difference in students exam grades?</p>	A study of three MOOCs hosted on the Coursera platform and made by Leiden University.
Canelas, D.A., Clark, C.R., Comer, D.K.	<p>How do peer-to-peer interactions through writing impact student learning in introductory-level writing and chemistry MOOCs?</p> <p>What is the impact of peer-to-peer writing on engaging students in MOOC coursework who identify as less academically-prepared and less self-motivated?</p>	An examination of two separate introductory-level MOOCs taught through Duke University and Coursera: one in humanities and one in English composition.

	How can peer-to-peer writing function as a metric to assess student success in MOOC delivered introductory writing and science coursework?	
Forsey, M., Glance, D.G., Riley, M.	How similar is a MOOC to: 1) Existing online courses offered for distance learning 2) Face-to-face delivery of courses as a part of blended learning.	A narrative analysis of research based on 138 articles from Google Scholar, Web of Knowledge and PsycINFO was carried out.
Chen, D., Feng, Y., Jiang, J., Yu, J., Zhao, Z.	Are there issues with peer grading in MOOCs? How can current peer grading in peer assessment be improved?	An throughout analysis of a Chinese course offered by Coursera. Building on a distributed data warehouse and analysis of course data.
Eimler, S. C., Krämer, N.C., Neubaum, G., Wichmann, A.	What can incentive students to give feedback in an online course?	A study of 91 German bachelor and master students enrolled in a semi-open course with an average age of 23.40 years.
Alonso-Betanzos, A., Bahamonde, A., Díes, J., Luaces, O., Troncoso, A.	How can the strengths of cardinal and ordinal peer grading methods be combined?	A report containing two real world dataset from three Spanish universities. Each dataset has 1327 grades given by 160 students to 175 assignments.
Luo, H., Park, J., Robinson, A.C.	Can peer grading provide a reliable and valid assessment of student assignments in a Coursera MOOC? Does the use of median score provide more valid assessment than the use of mean score when calculating the final peer grading scores? What are the perceived effects of peer grading on students' MOOC learning experience?	A study of 1825 peer grading assignments collected from a Coursera MOOC
Suen, Hoi K.	Is peer assessment a valuable instructor tool? Is peer	A theoretical discussion of various approaches to peer assessment.

	assessment a reliable type of assessment?	
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Tilskrivning af mening

For at tilskrive mening til artiklerne og til at øge forståelsen- og skabe klarhed for artiklerne, er der foretaget en syntese af disse. Synteserne og de identificerede nøgleord for artiklerne fremgår i nedenstående tabel.

Author(s)	Keywords	Synthesis
Al-Atabi, M., DeBoer, J.	<ul style="list-style-type: none"> • MOOC • Higher education • Formative assessment • Summative assessment • Peer assessment • Self-assessment • Quiz 	<p>The study is about assessment in MOOCs in general and about the reliability of self- and peer assessment. The study finds that structured self-and peer assessment has a higher reliability than unstructured assessment.</p> <p>The finds peer assessment to be more valid than self-assessment. Finally the study concludes that self- and peer assessment should only be used as formative assessment, not as summative assessment.</p>
Canelas, D.A., Clark, C.R., Comer, D.K.	<ul style="list-style-type: none"> • Open learning • Higher education • Online learning • MOOCs • Peer assessment • Writing to learn • Improved learning outcomes through writing 	<p>This study is about how writing and peer-to-peer dialogues affects student's learning in MOOCs. The study concludes that writing dialogues in online courses contributes to the development of student's critical reasoning skills and that writing is effective in the promotion of learning. Furthermore the study concludes that peer assessment is more effective when student focus on higher order writing elements and that faculty should encourage students to reflect on</p>

		their learning as well as structure and facilitate the process.
Forsey, M., Glance, D.G., Riley, M.	<ul style="list-style-type: none"> • Efficacy of online learning • MOOCs • Retrieval and testing • Peer and self-assessment • Short video formats • Online forum • Video discussions 	The study finds that retrieval learning and testing leads to an increased mastery of learning. It is pointed out that testing of students mastery of learning should happen instantly as well as delayed. As for peer assessment the study finds that peer and self-assessment can lead to development of an ability for self-learning as well as assisting development of professional skills through an enhancement of critical thinking and reflection.
Chen, D., Feng, Y., Jiang, J., Yu, J., Zhao, Z.	<ul style="list-style-type: none"> • MOOCs • Peer assessment • Peer grading • Peer grading reliability • Peer grading validity 	The study finds that current peer grading policies have several flaws, using a peer grading median for grading scores. The study suggests a new peer grading policy based on the grading history of course participants.
Eimler, S. C., Krämer, N.C., Neubaum, G., Wichmann, A.	<ul style="list-style-type: none"> • MOOC • Peer feedback • Peer assessment • Incentive • Measurement • Reliability 	The study finds that rating-feedback incentives effects feedback length, content, and time allocation but not provision. Rated feedback incentives motivates students to give longer feedback. Students told that the authors of the reviewed solution will pay attention to the feedback and rate it, will spend more effort providing feedback. The study also finds that giving critical feedback is more effective than positive feedback.
Alonso-Betanzos, A., Bahamonde, A., Díes, J., Luaces, O., Troncoso, A.	<ul style="list-style-type: none"> • Peer grading • Factorizing • Preference learning 	The study finds that peer evaluators get better by practicing. The number of assignments given to each

	<ul style="list-style-type: none"> • Ordinal and cardinal approaches • MOOCs 	<p>student-grader gives rise to a better performance both in the base-line and in the models learned.</p> <p>The study finds that the reliability of peer-grading can be improved by simply averaging the cardinal scores of the peer graders performs. Furthermore, including the assessment of students as graders as a part of their final score improves the quality of evaluation.</p>
Luo, H., Park, J., Robinson, A.C.	<ul style="list-style-type: none"> • MOOCs • Peer assessment • Peer grading • Reliability in peer grading • Validity in peer grading • Median- and mean scores 	<p>The study finds that students can produce valid and reliable grading scores, but also recognizes that more empirical research is needed for any generalizable claims. It finds that reliability in peer grading can be increased by assigning more student graders to the assignments, and that three peer graders is a minimum. Furthermore, the use of median scores and mean scores depends on the context and the type of graders in an online course. The study suggests that educating MOOC students in grading and/or establishing a mechanism to review student's grading performance can be a solution to make grading more reliable. Finally, the study concludes that the use of peer assessment can stimulate reflection and lead to a higher level of cognitive activity and promote meaningful learning.</p>
Suen, Hoi K.	<ul style="list-style-type: none"> • MOOCs • Peer Assessment 	<p>The study finds that peer assessment is the most applicable assessment method in MOOCs to date. Without</p>

	<ul style="list-style-type: none"> • Formative evaluation • Calibrated Peer review • Credibility index 	<p>formative assessment such as peer assessment, MOOCs are amount to information dump and is not an educational experience and can not be considered a complete teaching-learning experience. To produce more accurate peer ratings a Bayesian model can be used, taking in consideration about the rater's accuracy and consistency.</p> <p>Finally, the study finds that peer assessment is a valuable instructor tool and that it can be used as a supplement to summative evaluation, measuring high level cognition such as analysis, synthesis and evaluation according to Blooms taxonomy.</p>
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Peer assessment som evalueringværktøj

Det fremgår i flere af artiklerne (Al-Atabi & DeBoer, 2014, Canelas, Clark & Comer, 2014. Luo, Park & Robinson, 2015. Suen, 2014) at Peer assessment både kan anvendes formativt og summativt. Ifølge Suen (2014) er peer assessment den mest anvendelige vurderingsmetode i MOOCs til dato. Hvis ikke der inddrages formative evalueringværktøjer i MOOCs, som eksempelvis peer assessment, bliver MOOCs reduceret til informations dumping og kan ikke ansues som en komplet lærer-elev oplevelse. I forhold til at anvende peer assessment som summativt evalueringværktøj, vurderer Suen (2014) at det kan anvendes til at måle et højt kognitionsniveau som analyse, syntese og evaluering, dette jævnfør Blooms Taxonomi. Ifølge Canelas, Clark og Comer (2014) kan peer assessment anvendes som formativt evalueringværktøj til at udvikle kritisk tænkning hos deltagerne, hvor skriftligheden i peer assessment har stor betydning for netop dette. At peer assessment kan danne rum for udvikling af kritisk tænkning og refleksion fremhæves og konkluderes ligeledes af Forsey, Glance og Riley (2014) og af Luo, Park og Robinson (2014). Ved at se resultaterne fra literature reviewet kan det konkluderes, at peer assessment har potentiale til at facilitere transformativ læring, herunder udvikling af kritisk tænkning og ændringer af meninger og holdninger. Udviklingen af den kritiske tænkning kan ifølge Canelas, Clark og Comer (2014) fremmes, hvis der i strukturen for peer assessment er fokus på at facilitere den kritiske tænkning.

Reliabilitet og validitet

Ifølge Luo, Park og Robinson (2014) kan peer assessment både producere valide og reliable vurderinger, de anderkender samtidig, at der er behov for mere empirisk forskning på området. Luo, Park og Robinson (2014) vurderer at reliabiliteten i peer assessment kan øges ved at øge gruppestørrelsen i peer assessment,

og fremhæver at grupperne bør bestå af minimum tre deltagere. De foreslår hertil at MOOC-deltagere bør uddannes i at foretage peer assessment og at dette ligeledes kan øge reliabiliteten og validiteten. Chen et.al. (2014) fremsætter at nuværende peer assessment evalueringspolitikker har adskillige mangler og foreslår at en evalueringspolitik der tager deltagernes evalueringshistorik in mente er mere reliabel. I forlængelse heraf foreslår Suen (2014) en Bayesiansk model, der tager deltagernes præcision og kontinuerlighed i betragtning. Denne opfattelse bakkes op af Alonso-Betanzos et.al. (2015) der fremhæver at peer assessment deltagere udvikler deres evner til at foretage evaluering jo mere de praktiserer det, hvorigennem evalueringerne bliver mere reliable og valide. Hertil fremhæver Alonso-Betanzos et.al. (2015) at peer assessment kan gøres reliabelt gennem inddragelse af summative vurderinger af deltagerne som karaktergivere, hvor deltagerne i supplement til at blive vurderede og få karakterer for deres svar på refleksionsspørgsmål, bliver vurderede og får karakterer for den peer-feedback de giver til de andre deltagere. Dertil foreslår Alonso-Betanzos et.al. (2015) at der kan anvendes en formel til at producere valide karakterer i peer assessment, som tager udgangspunkt i gennemsnittet af de karakterer den vurderede får af sine fagfælder.