

Elektronische Prüfungen

Prüfungsformate für das Digitale Semester

The image shows a vast, empty lecture hall or auditorium. Rows of brown plastic chairs are arranged in a tiered fashion, receding into the distance. The lighting is dim and warm, creating a sense of solitude. On the right side, a portion of a light-colored wall is visible. The overall atmosphere is quiet and contemplative.

Alles anders im
Digitalen Semester?

Diagnostische
Gütekriterien von
Prüfungen sollen
unverändert bleiben



Repräsentativität: Bildet eine Prüfung ihren Gegenstand umfassend ab?

Validität: Wie gut misst eine Prüfung das, was sie messen soll?

Reliabilität: Wie zuverlässig misst eine Prüfung das, was sie misst?

Objektivität: Kommen verschiedene Prüfende bei derselben Leistung zum gleichen Ergebnis?

Ökonomie: Wie effizient misst eine Prüfung das, was sie misst?

Transparenz: Haben alle Beteiligten Einblick in den Prüfungsprozess?



technisch

didaktisch

4 Anforderungsdimensionen elektronischen Prüfens

rechtlich

organisatorisch

Klassische oder alternative
Prüfungsformate

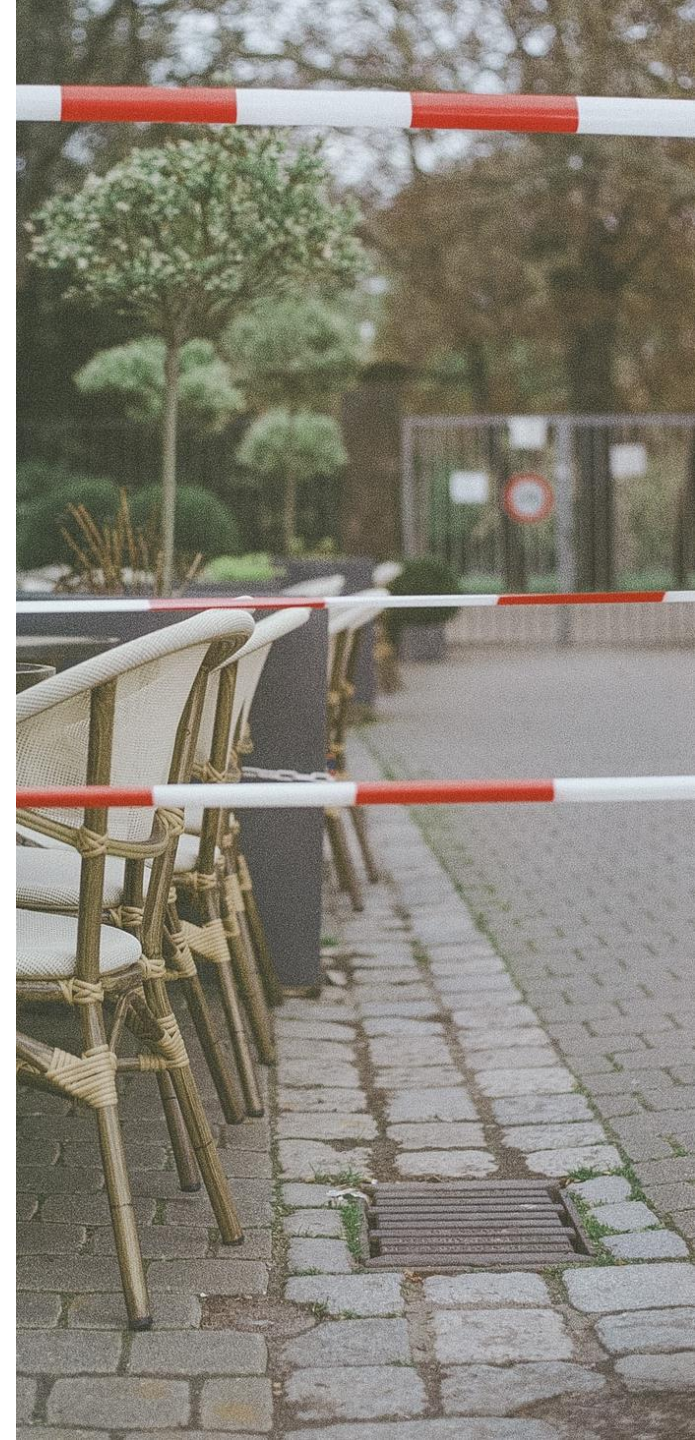
Präsenzprüfungen oder
Distanzprüfungen



Präsenzprüfungen

Die Durchführung von Präsenzprüfungen an Hochschulen ist erheblich eingeschränkt.

Es sind Distanzprüfungen oder alternative Prüfungsformate zu entwickeln, die häufig elektronisch gestützt sind.



Distanzprüfungen





Menü



DE | EN

Suche



Hochschulforum
Digitalisierung

Bild: Nick Morrison

Dossier

PRÜFUNGEN IM DIGITALEN

E-Assessment, digitale Prüfungen, Online-Proctoring - digitale Leistungsmessung wird für Hochschulen immer wichtiger.

Leseempfehlung: <https://hochschulforumdigitalisierung.de/de/dossiers/pruefungen-im-digitalen>

Täuschungsanalyse

Anwendungskontext
(Präsenz oder Distanz)

Prüfungsform
(mündlich oder schriftlich)

Aufwand für Studierende
(Niedrig, mittel, hoch)

Kontrollmöglichkeiten

Sicherstellungsmöglichkeiten



<https://tinyurl.com/4hf9wem4>

Täuschungsversuche ohne Beteiligung Dritter

Unerlaubte analoge Materialien
(Spickzettel, manipulierte Unterlagen)

Täuschung während einer Pause

Digitale Einblendungen (Haupt-
Zweitbildschirm, anderes Endgerät)

Simulation der Bearbeitung durch Video



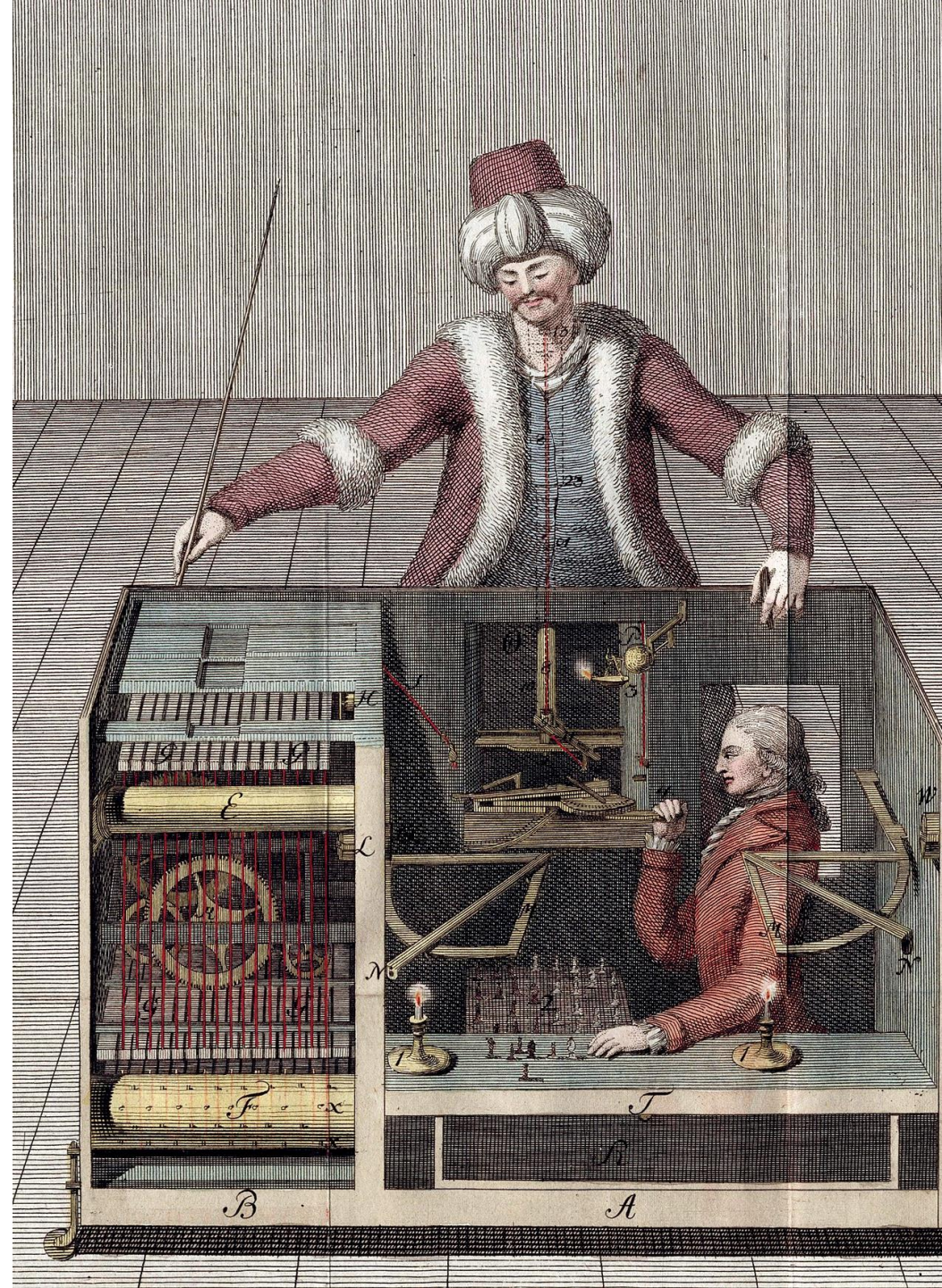
Täuschungsversuche mit Beteiligung Dritter

Kopieren der Lösungen

Dritte im Raum oder akustisch
zugeschaltet

Übertragung und/oder Fernsteuerung
des PC („Schachtürke“)

Ersetzen der digitalen Prüfungsdatei



Täuschungsmöglichkeiten

Distanz

Präsenz

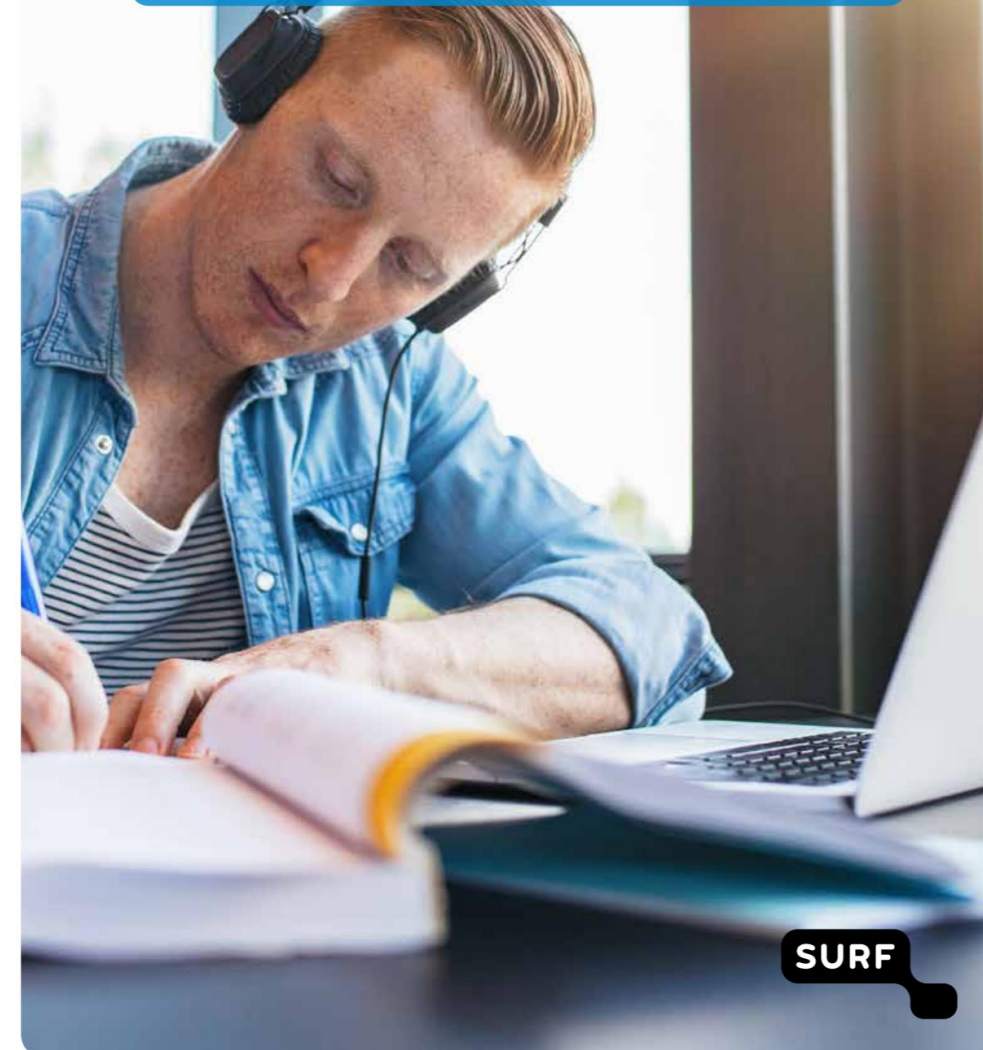


Online Proctoring ist ortsunabhängiges digitales Assessment. Die Teilnahme an Prüfungen findet online mithilfe spezieller Software statt, die Täuschungen verhindern soll. Die Software ermöglicht dazu Aufzeichnungen in verschiedenster Form (z.B. Bildschirmfotos, Video, Audio, Clickstream).

WHITEPAPER ONLINE PROCTORING

QUESTIONS AND ANSWERS AT
REMOTE SURVEILLANCE

SURF, April 2020



SURF

Digitale Prüfungsformate

Programmieren
lernen

Mikro-
Stadtplanung

Wirtschafts-
simulation

Biblische
Theologie

Plattform	Entwickler	URL	kommerziell	Aufgabenformate
Dynexite	RWTH Aachen	https://dynexite.rwth-aachen.de/	nein	Multiple-Choice-Aufgaben, Single-Choice-Aufgaben, Lückentext-Aufgaben, Ergebniseingabe-Aufgaben, Klassifikationsaufgaben, Freitextaufgaben, Buchungssätze, Tabelleneingabe
ILIAS	Uni zu Köln	https://www.ilias.de/	nein	Multiple-Choice-Aufgaben, Single-Choice-Aufgaben, Lückentext-Aufgaben, Freitextaufgaben, Numerische Aufgaben, Text-Teilmengen-Aufgaben, Zuordnungsaufgaben, Anordnungsaufgaben, ImageMap-Aufgaben, Datei-Upload-Aufgaben, Kprim-Aufgaben, Fehlertext-Aufgaben, Zeichenaufgabe
JACK	Uni Duisburg-Essen	https://jack.s3.uni-due.de/	nein	Multiple-Choice Aufgaben, Single-Choice-Aufgaben, Lückentext-Aufgaben, Freitextaufgaben, JAVA-Aufgaben (für verschiedene Programmiersprachen), UML-Aufgaben (für UML- und EPML-Modelle), Code-Reading-Aufgaben (für spezielle Aufgaben zur Programmierung), R-Aufgaben (für die Programmiersprache R)
Moodle	Moodle Foundation	https://moodle.org/	nein	Multiple-Choice-Aufgaben, Single-Choice-Aufgaben, Lückentext-Aufgaben, Freitextaufgaben, Wahr/Falsch-Aufgaben, Ergebniseingabe-Aufgaben, Drag/Drop-Aufgaben, Matching-Aufgaben
evaexam	evasys GmbH	https://evasys.de/evaexam/	ja	Multiple-Choice-Aufgaben, Single-Choice-Aufgaben, Wahr/Falsch-Aufgaben, segmentierte c (ICR), Kprim-Aufgaben, Zuordnungsaufg
LPLUS	LPLUS GmbH	https://lplus.de/	ja	Multiple-Choice-Aufgaben, Single-Choice-Aufgaben, Freitextaufgaben, Numerische Aufgabe, Anordnungsaufgaben, Fehlertext-Aufgaben, Aufgaben (Cluster)
ONYX	BPS Bildungsportal Sachsen GmbH	https://www.bps-system.de/onyx-testsuite/	ja	Multiple-Choice-Aufgaben, Single-Choice-Aufgaben, Freitextaufgaben, Drag/Drop-Aufgaben, Datei-Upload-Aufgaben, Numerische A
Q-Exam	IQUL GmbH	https://www.q-exam.net/	ja	Multiple-Choice Aufgaben, Single-Choice-Aufgaben, Freitextaufgaben, Zuordnungsaufgaben, Klassifikationsaufgaben



<https://tinyurl.com/x7eyydvx>

Auswahl

Anzahl Prüflinge

- 1 ☒
- 2 - 5 ☐
- 6 - 15 ☐
- 16 - 30 ☐
- > 30 ☐

Feedbackquellen

- Selbstbeurteilung ☐
- Lehrperson / Dozierende ☒
- Coach / Mentor / Praktikumsleitung ☐
- Tutorin / Teaching Assistant ☐
- Experten / Assessor ☐
- Mitstudierende / Gruppenmitglieder ☐
- Patienten / Kundinnen / Auftraggebende ☐
- Computer / Software ☐

Ergebnisse

- Schriftliche Darlegung ☒
- Mündliche Erörterung ☐
- Praktische Handlung ☐
- Fachspezifisches Produkt ☐

Aufgabentypen

- Reproduktion (Fakten erinnern) ☒
- Interpretation (Konzepte/Modelle beschreiben) ☐
- Anwendung (Verfahren ausführen / Erkenntnisse übertragen) ☐
- Analyse (Zusammenhänge ermitteln) ☐
- Evaluation (Kriterienorientiert beurteilen) ☐
- Entwicklung (Neues entwerfen) ☐
- Realisierung (Praktische Umsetzung) ☐

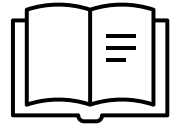
Assessments

Folgende Assessments stimmen genau mit Ihren Anforderungen überein:

	Confidence-based Assessment	100%
	Lehrveranstaltungs- bzw. Sitzungsprotokoll	100%
	Multiple Choice Prüfung	100%
	Problemerkennungsaufgaben	100%
	Prüfungsfragen selber erstellen	100%
	Schriftliche Umordnungs-Aufgabe	100%
	Sieben W's	100%

Folgende Assessments stimmen teilweise mit Ihren Anforderungen überein:

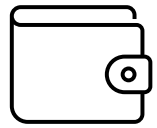
	Merkmals- oder Funktionsmatrix	93.75%
	Pro- und Kontra-Tabelle	93.75%
	RSQC2	93.75%
	Take-Home-Klausuren	93.75%
	Einen wissenschaftlichen Artikel für eine fiktive Zeitschrift verfassen	87.5%
	Falllösung erstellen	87.5%
	Forumsbeiträge im Netz	87.5%
	Lernportfolio erstellen	87.5%



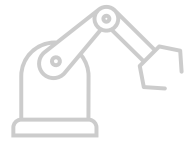
Offene Prüfungsformate



Take-Home Prüfungen



Lern-/Prüfungsportfolios



Projektarbeiten



Planspiele (Serious Games)

Closed Book Exams (CBE)

Cheat Sheet Exams (CSE)

Open Book Exams (OBE)

Open Web Exams (OWE)

AN EVALUATION OF COLLEGE STUDENTS' REACTIONS TO OPEN BOOK EXAMINATIONS

JOHN F. FELDHUSEN
Wisconsin State College

TEACHERS at all levels continue to show some interest in the open-book examination as a measurement technique which may offer solutions to problems associated with closed-book testing. Tussing's (1951) general discussion of the open-book test presents highly optimistic conclusions concerning the advantages of an open-book examination. He suggests that fear and emotional blocks are removed, cheating is eliminated, and the test can be constructed in any of the traditional test forms. Kalish's (1958) more recent experimental report on the open-book examination concluded that the opportunity to use the text and lecture notes afforded no advantage in test error reduction. However, he also concluded that the open-book examination measures different abilities from the closed-book examination. He concluded, finally, that student ratings of the value of the open-book examination will not be related to their examination scores.

Problem

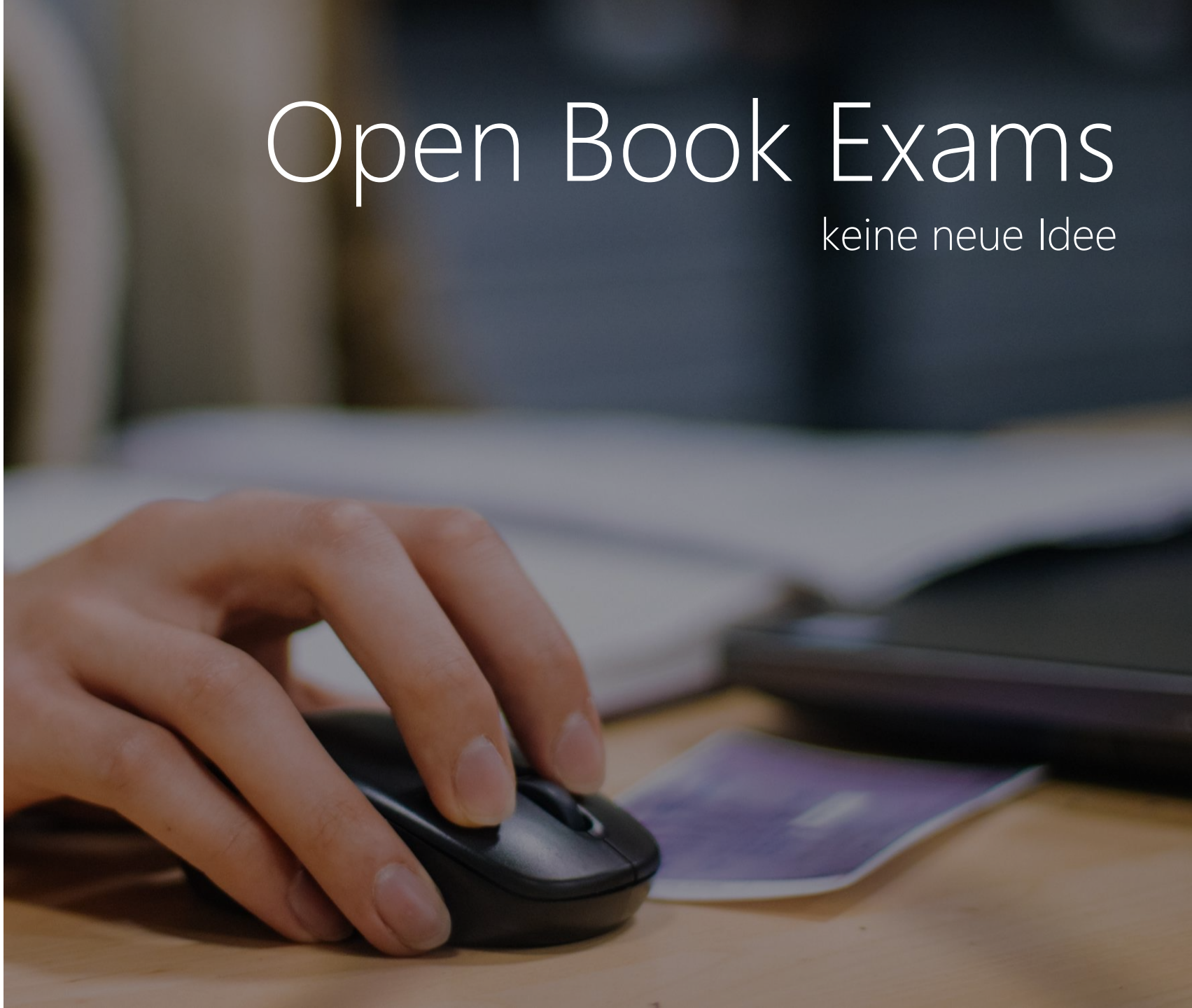
The present study is concerned with college students' reactions to the open-book and the closed-book examination on both objective and essay tests. The subjects in the study were all candidates for teaching certificates, and thus the present study was further concerned with the subjects' perception of the two testing procedures in relation to their own future teaching practices.

Method

Subjects. The subjects, 76 per cent women, 24 per cent men, were 90 students at the University of Wisconsin enrolled in three sec-

Open Book Exams

keine neue Idee



Oft verwendetes Mittel im
Digitalen Semester

Oft keinerlei Erfahrung bei
Studierenden mit OBE:
Bucharbeit muss geübt werden

Eignung vor allem auf höheren
Kompetenzebenen

Didaktische Qualität der
Klausuren steigt

A Case for Open-Book Examinations

JOHN FRANCIS, *The Associated Examining Board, Aldershot*

ABSTRACT Investigations in
shown that they reduce student
An investigation into the effect
in English Literature showed
to use texts and notes in the
than their peers who took a

Secondary school examinations
recent years; not only has
appropriateness of traditional
advances have been made
attempted to assess student
during their course of study
or during further study
craft design problems,
discussion of the



Educator's Corner

Open-Book Examinations for Assessing Higher Cognitive Abilities

■ Madhu S. Gupta

MEDICAL TEACHER
<https://doi.org/10.1080/0142159X.2020.1811214>

PERSONAL VIEW

Assessing open-book examination in medical education: The time is now

Ivry Zagury-Orly^a and Steven J. Durning^b

^aFaculty of Medicine, Université de Montréal, Montréal, Canada; ^bCenter for Health Professions Education, Uniformed Services University of the Health Sciences, Bethesda, MD, USA

ABSTRACT
As a result of the coronavirus pandemic, the feasibility of holding secure closed-book examinations in medical education is compromised. In this Personal View, we compare the underlying reasoning for using open-book and closed-book exams. We rethink the role of open-book assessment and offer ways in which we believe they can complement closed-book exams. We highlight the gap in research, highlight future directions, and call on medical educators to seize our current golden opportunity to explore the impact of open-book exams – on their own or combined to closed-book tests, as a blended approach – on learners, educators, and licensing bodies.

KEYWORDS
Assessment; evidence-based medicine; best evidence medical education; independent; e-learning/computers

The coronavirus pandemic has forced medical educators, globally, to adapt their teaching and assessment to the online environment. Assessing learners online, theoretically poses a concern for test security, particularly for high-stakes testing (Durning et al. 2016; Fuller et al. 2020). Administration of closed-book examinations (CBEs) and open-book examinations (OBEs) vary from being unsupervised to test-taking programs with audio and video monitoring and fingerprint identification (Fuller et al. 2020). As of now, the use of OBE versus CBE remains a debate – with reason: definitive evidence supporting the use of one over the other is lacking (Durning et al. 2016). As several universities plan to maintain their courses online, while others choose to hold in-person classes in the fall, despite the risk of a second lockdown, we must embrace our window of opportunity to investigate the use of online OBEs and explore previously unexamined possibilities for learners, educators, and licensing bodies.

There exist several theoretical assumptions underlying the decision to use CBEs or OBEs. On the one hand, advocates for CBE generally contend that the one-hand

An open-book exam permits the examinee to consult some rate and extensive recall, and unless carefully designed, its assessment of knowledge is likely to be

of other considerations as well, some of which are summarized in Table 1. There is little reported research on the subject, though it surveyed in [2] and [3], and potential advantages and weaknesses listed in Table 1 are based more on experience and belief rather than on results of rigorous educational research and longitudinal studies.

Problems for Open-Book Exams

the expected benefits of open-book exams are to accrue, the instructors preparing the exam questions must first aim to take advantage of the format. Selection of exam questions usually rests on multiple considerations, such as the need for a broad sampling of the subject matter to avoid an uneven emphasis in coverage; this leads to a preference for a larger number of problems, in turn decreasing the amount of time available for each. At the same time, the choice of problems is constrained both in respect of their depth (which influences the level of difficulty experienced by the intended examinees), and their length (so as to ensure that the amount of required work is appropriate for the available time). These constraints force the exam problems to be familiar, short, single-step, simple and idealized problems, or snippets of somewhat more realistic problems, to keep the cognitive workload at a reasonable level. In a

Tendenziell höhere
Vorbereitungszeit/-qualität
und Anwesenheit bei CBE
Unveränderte Lernstrategien
Eher bessere Prüfungs-
leistungen bei CBE
Vergleichbare
psychometrische Qualität

Comparing Open-Book and Closed-Book Examinations: A Systematic Review

Steven J. Durning, MD, PhD, Ting Dong, PhD, Temple Ratcliffe, MD, Lambert Schuwirth, MD, PhD, Anthony R. Artino Jr, PhD, John R. Boulet, PhD, and Kevin Eva, PhD

Abstract

Purpose
To compare the relative utility of open-book examinations (OBEs) and closed-book examinations (CBEs) given the rapid expansion and accessibility of knowledge.

Method

A systematic review of peer-reviewed articles retrieved from MEDLINE, ERIC, Embase, and PsycINFO (through June 2013). In 2013–2014, articles that met inclusion criteria were reviewed by at least two investigators and coded for six outcome categories: (1) examination preparation, (2) test anxiety, (3) examination performance, (4) psychometrics and

logistics, (5) testing effects, and (6) public perception.

Results

From 4,192 identified studies, 37 were included. The level of learner and subject studied varied. The frequency of each outcome category was as follows: (1) exam preparation ($n = 20$; 54%); (2) test anxiety ($n = 14$; 38%); (3) exam performance ($n = 30$; 81%); (4) psychometrics and

appear to take longer to complete OBEs. Studies addressing examination performance favored CBE, particularly when preparation for CBE was greater than for OBE. Postexamination outcomes suggest little difference in testing effects or public perception.

Conclusions

Given the data available, there does not appear to be sufficient evidence for exclusively using CBE or OBE. As such, a combined approach could become more significant part of testing bodies seek ways

A Comparison of Take-Home Versus In-Class Exams

ROBERT MARSH
Community Counseling Center
Fort Bragg, North Carolina

ABSTRACT

This study attempted to determine if the currently popular take-home exam was as effective a learning vehicle as the traditional in-class exam. Ten classes from five universities were randomized into two equal groups. Members of Group A were given a take-home test and members of Group B were administered an in-class test. One week later, an announced test, accompanied by a questionnaire, was given to all participants. The latter, an objective test, measured the first three levels of Bloom's Hierarchy of Cognitive Learning. The B Group members attained significantly higher learning performances than did the A Group members in all categories. The participants admitted that they studied harder for an in-class exam. The results suggested that the in-class exam produced a greater amount of study and learning in a college-level academic environment.

pished properly. She states that the relationship between anxiety and test performance is probably nonlinear, and that some anxiety is good while too much is detrimental. Many practices have been designed to dispel anxiety in the classroom test environment, but she points out that "the examiner's own manner and a well organized, smoothly running testing operation will contribute toward the same goal" (Anastasi, 1976). Although students experience differing levels of anxiety before exams, it is probably not a good idea to eliminate testing for that reason alone. Our aim should not be to completely avoid stress, which is not realistic in our world and would be impossible, but to learn how to recognize our typical response to stress and then try to adjust our coping styles accordingly (Selye, 1978).

There is a paucity of specific literature comparing take-home exams and in-class exams. There is evidence that oral and written testing are equally effective and that either method is better than no testing at all (Calhoun, 1962). Also, studies show that academic achievement of undergraduate students is lower under a pass/fail grading system than under the standard grading system (Bain, Hales, & Rand, 1973; Gold, Reilly, Silberman, & Lehr, 1971).

This study was an effort to determine whether the take-home test was as good or better as a vehicle for learning than the traditional in-class test. The results of this experiment are important because instructors are increasingly deleting the in-class test (Gay & Gallagher, 1976), and there seems to be no empirical basis for the current trend toward eliminating formal written tests. Thus, the major concern over classroom exams is that they cause debilitating anxiety. However, research demonstrated that in a test situation

In 1976, a study (Gay & Gallagher, 1976) was performed in which a large basic class of undergraduates was randomly divided into three sections. One section was given periodic take-home exercises, the second section was given periodic tests, and the third group was given a choice. It is interesting to note that no one in the third group elected to take tests. Except for these different treatments, all students were treated as equally as possible. At the end of the semester, the students

Please see the end of this article for the authors' correspondence.

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Acad Med. 2016;91(10):1097-1103. First published online: October 10, 2016. doi: 10.1097/ACM.0000000000000103

Supplemental digital content is available at <http://www.academicmedicine.com>.

Academic Medicine

Kaum Unterschiede bei Stress
und Prüfungsangst

Längere Bearbeitungsdauer in
OBE/OWE (bei
gleichbleibenden Leistungen)

OWEs und OBEs trotzdem von
Studierenden bevorzugt

The 'Power Test': its impact on student learning in a materials science course for engineering students

CAROLINE BAILLIE¹ & SUSAN TOOHEY², ¹Department of Materials, Imperial College of Science Technology and Medicine, London, UK; ²Professional Development Centre, University of New South Wales, Sydney, Australia

ABSTRACT This paper explores the impact of a 'Power Test' on student learning in a materials science course. The test was discussed with reference to the experience of students at university. The test was a format final exam, with a nominal group technique of answers using the SOLO method with those of students taking the closed book test.

TAKE HOME TESTS: An Experimental Study

Larry J. Weber, Janice K. McBee, and Jean E. Krebs

The take home test was compared with the conventional closed and open book tests at the college level. It was found that scores on knowledge items were significantly higher with the take home test, and that additional time spent looking up answers was a significant factor was the level of anxiety, perceived by students. Rampant cheating does not appear to be a problem.

Advances in Health Sciences Education (2008) 13:263-273
DOI 10.1007/s10459-006-9038-y

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Open-book Tests to Complement Assessment-programmes: Analysis of Open and Closed-book Tests

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¹Institute for Medical Education, University of Groningen and University Medical Center Groningen, A. Deusinglaan 1, 9713, AV, Groningen, The Netherlands; ²Center for Research and Innovation of Medical Education, University of Groningen and University Medical Center Groningen, A. Deusinglaan 1, 9713, AV, Groningen, The Netherlands; ³Faculty of Behavioural and Social Sciences, University of Groningen, Groningen, The Netherlands (*author for correspondence, Phone: +31-50-363-82-61; Fax: +31-50-363-38-65; E-mail: m.penninga@med.umcg.nl)

(Received: 30 November 2005; Accepted: 20 September 2006)

Abstract. Today's health sciences educational programmes have to deal with a growing and changing amount of knowledge. It is becoming increasingly important for students to be able to use and manage knowledge. We suggest incorporating open-book tests in assessment programmes to meet these changes. This view on the use of open-book tests is discussed and the influence on test quality is examined. To cope with the growing amount of medical knowledge, we have divided the body of knowledge into *core knowledge*, which students must know without need for references, and *backup knowledge*, which students need to understand and use properly with the help of references if so desired. As a result, all tests consist of a subtest for reproduction and understanding of core knowledge (a closed-book test) and a subtest for the ability to understand and manage backup knowledge (an open-book test). Statistical data from 14 such double-subtest exams for first and second-year students were analyzed for two cohorts ($N = 435$ and $N = 449$) with multilevel analysis, in accordance with generalizability theory. The reliability of the open and closed reliability somewhat. The estimated disattenuated correlation was 0.960 and 0.937 for cohorts 1 and 2 respectively. It is concluded that the use of open-book items with closed-book items slightly decreases test reliability but the overall index is acceptable. In addition, open and closed-book sections are strongly positively related. Therefore, open-book tests could be helpful in complementing today's assessment programmes.

Key words: assessment, competency-based education, educational, learning, open-book tests

has been conducted on the use of take home tests as a viable alternative to assessment phenomena associated with take home tests of examinations: the conventional and the take home test. Specific question about the following:

Questions associated with the type of examination (open or take home)?
Impact on items which purport to measure knowledge on items which purport to measure understanding of the three exam modes?
Factors associated with the type of examination.

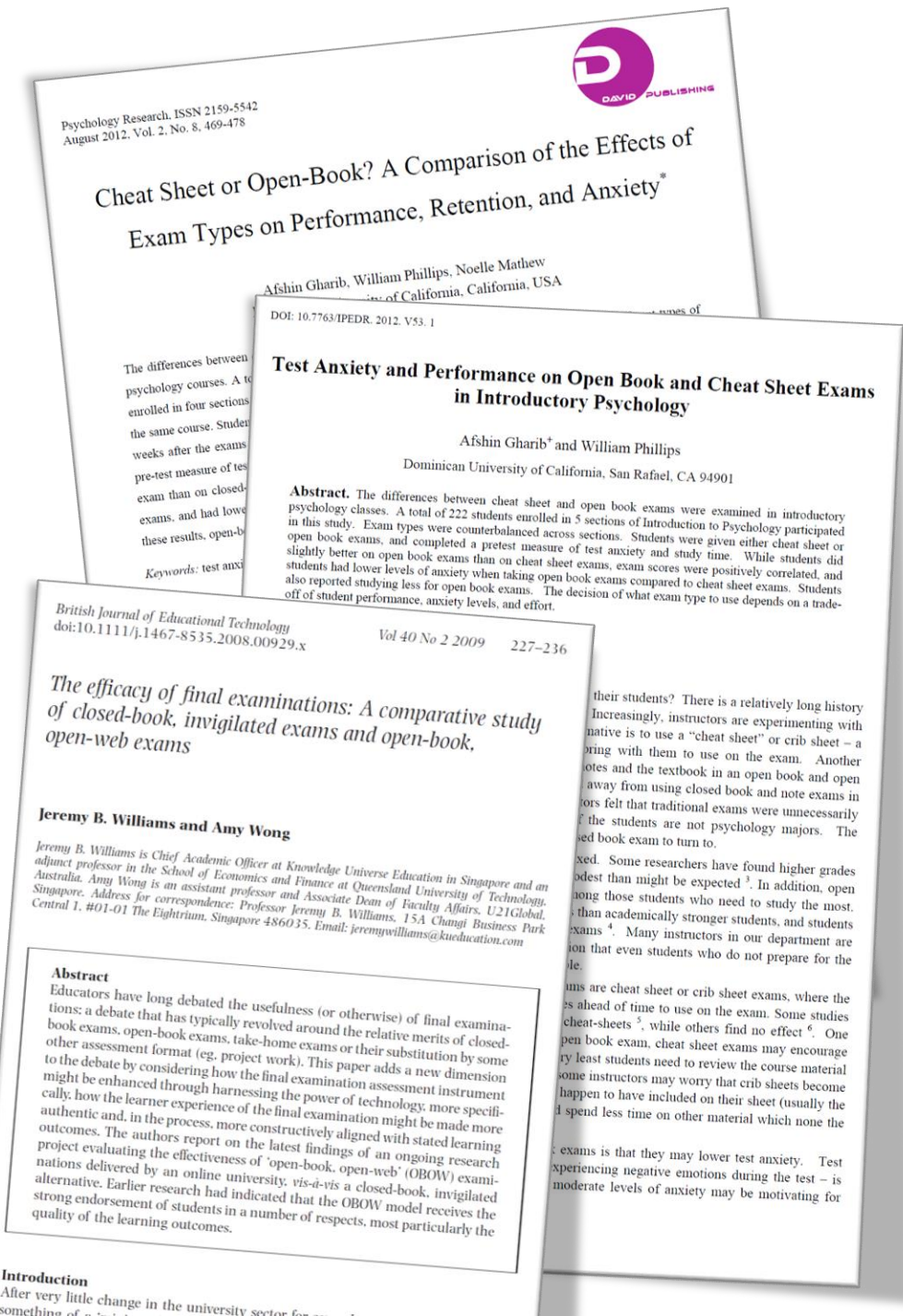
Reber, Virginia Polytechnic Institute and State University, Blacksburg, VA
Press, Inc. Vol. 18, No. 2, 1983

Keinerlei Vorteile bei CSE
hinsichtlich Prüfungsleistung

Vorbereitungszeit bei CSE
tendenziell länger

Stress und Prüfungsangst bei
CSE höher als bei OBE/OWE

Keine vermehrten Täuschungs-
fälle in allen Varianten



Take-Home Prüfungen



CREATIVE THINKING + EXECUTION
HERE'S HOW - BUT IF YOU NEED HELP, I'M HERE FOR YOU!

BUSINESS
PH
INSTAGRAM

VIDEO
WRITING
VIDEO
COACHING

COMMERCIAL
VOICEOVER
IVR

CONSTRUCTING

PERSONAL
COACHING

LOGO DESIGN
WHY I DON'T
LIKE 99 DESIGNS
FINDING
A LOGO
TEMPLATE

TIME TO UPDATE YOUR
SITE?

DESIGN WHY SQUARESPACE

INCREASE SALES, INCREASE ENGAGEMENT -
Share your story in a visual way

THE VALUE I BRING TO YOUR BUSINESS -
FOR BRAIN PICKERS B

ALL OF MY BEST THINKING IN ONE PLACE

DOWNLOAD -> QUESTIONS TO ASK BEFORE YOU START YOUR BUSINESS

BY REGINA COLE - HOW TO START A COACHING BUSINESS

PEOPLE DON'T WANT YOU TO SIGN UP TO YOUR NEWSLETTER!
INSTEAD OFFER A LEAD GEN - PDF - OFFERS THEM SOMETHING REAL
DESIGNS LAY IT OUT - ME!

Help people grow their
businesses
Generate leads
Share - info -
ideas -
things - common

Vorbereitungsintensität ist niedriger für Take-Home-Prüfungen

Leistungszeit und Leistungen in Take-Home-Exams sind höher

In kontrollierten Studien zeigen Studierende bei überwachten Prüfungen schlechtere Leistungen als bei Take-Home Prüfungen

A Comparison of Take-Home Versus In-Class Exams

ROBERT MARSH
Community Counseling Center
Fort Bragg, North Carolina

plished properly. She states that the relationship between anxiety and test performance is probably non-linear, and that some anxiety is good while too much is linear, and that some practices have been designed to control the test environment, but she

ABSTRACT
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TAKE HOME TESTS: An Experimental Study

Larry J. Weber, Janice K. McBee, and Jean E. Krebs

The take home test was compared with the conventional closed and open book tests at the college level. It was found that scores on knowledge items were significantly higher with the take home test, and that additional time spent looking up answers was important. An additional factor was the level of anxiety, perceived by students to be less with the take home test. Rampant cheating does not appear to be a problem with take home tests.

Virtually no experimental work has been conducted on the use of take home examinations. Since it is common practice for many college faculty to utilize such tests, it seemed appropriate to study them in order to determine if problems exist which would hinder their use as a viable alternative to assessing student progress. In investigating phenomena associated with take home tests, we gathered data on three types of examinations: the conventional closed book test, the open book test, and the take home test. Specific questions were designed to provide information about the following:

1. Is student achievement on examinations associated with the type of examination administered (closed, open, or take home)?
 - a. Is there a difference in achievement on items which purport to measure knowledge?
 - b. Is there a difference in achievement on items which purport to measure higher cognitive skills?
2. What are the attitudes of students toward the three exam modes?
3. Is the amount of cheating by students associated with the type of examination taken?

Erheblich höherer Aufwand bei der Erstellung von Aufgaben für Take-Home-Exams

Sorgfältige Wahl des Zeitrahmens notwendig

Kritische Bewertung durch Studierende

Nutzen von Ehrenerklärungen?

Open-book-exams and Take-home-exams

OPEN-BOOK-EXAMS

- Open-book-exams are written exams in which aids (e.g. lecture notes, books, internet resources) are explicitly allowed.
- Open-book-exams can take place both in the classroom and as take-home-exams.
- Depending on the examination scenario, only certain (e.g. own notes or a dictionary) or unlimited aids can be admitted.

MEDICAL TEACHER
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PERSONAL VIEW

The prospects of sitting 'end of year' open book exams in the light of COVID-19: A medical student's perspective

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ABSTRACT

Medical schools in the UK have been forced to dramatically restructure teaching and assessment amidst the Coronavirus (COVID-19) pandemic. As part of this, some have opted to assess progression through open book examinations (OBE). I aim to share my thoughts as an unsettled 4th year medical student about to embark on my first set of clinical exams conducted in this format. The difficulties associated with preparing for examinations under such unique and challenging circumstances cannot be underestimated. Working from home, during social distancing, surrounds students with the extra family stresses that we are all facing during this pandemic. The combined with a new, unfamiliar examination format will inevitably lead to students feeling daunted. While some would argue that an OBE may reward good problem solvers, students still require a strong foundation of knowledge. The luxury of reference will not be afforded in all clinical settings thus leading to concerns regarding students skimming over essential learning points. Furthermore, we cannot ignore the increased opportunity for academic misconduct resulting from an open book assessment format. Why are medical schools placing undue stress on students who could instead focus their attention on living compassionately for others during this difficult time?

We are currently experiencing a global health, economic, and for many students, educational crisis. Medical schools in the UK have been forced to fast-track final years, cancel classes, and restructure curriculums to ensure adequate medical cover on the frontline during the Coronavirus (COVID-19) pandemic. In addition to the immense difficulties faced by medical schools, one must not overlook the considerable strain on those academic staff who combine teaching responsibilities with NHS roles in what is an unprecedented situation.

UK medical schools have focused on delivering remote teaching in an attempt to fulfill the General Medical Council (GMC) requirements and to maintain high educational standards. Some medical schools have opted to assess year progression through online open book multiple choice question examinations (OBEs). I aim to share my thoughts as an unsettled 4th year medical student about to embark on my first set of clinical exams conducted in such a format.

Firstly, we must address the issue of preparing for the exams amongst this unfolding crisis. Many students, like myself, choose to work in libraries and allocated study areas. These provide distraction-free environments for users to focus on academic work. Inevitably, isolation has led to a lack of social interaction and support. This work-family stress is simply not conducive to a productive work environment.

The next challenge is how should one approach the learning process required to achieve high marks in open book exams? As part of good exam technique, students will be inclined to focus their studying on areas with the perceived highest yield for marks. As such, in an open book setting, they may choose to dismiss key recall facts such as drug side effects or interactions, knowing this information would be available to them in a few clicks of a medical device. I acknowledge that in most situations in National Formulary (BNF) or other clinical guidelines, decisions must be made immediately. Potential delays in finding the relevant information may lead to patient harm. Ultimately, students require a strong core of knowledge to allow them to progress towards being safe practising doctors.

The lack of OBE experience for both students sitting the exams and examiners constructing the papers may provoke anxiety amongst students such as myself. Without ever taking a formative OBE, negative thoughts may arise. However, the OBE format may be a necessary step in the right direction. It allows students to demonstrate their understanding of the topic and encourages them to engage with the material. It also provides a platform for students to discuss their learning and to receive feedback from their peers and supervisors. This is a valuable opportunity for students to develop their clinical reasoning skills and to learn from their mistakes. The OBE format is a challenging but fair assessment method that allows students to demonstrate their knowledge and understanding of the topic in a way that is consistent with the demands of the medical profession.

demonstrate certain formats. Examples are show that they are able contexts or to acquire and actually question the acquisitions. Depending on the and encourage the development initiative. It also meets to have the opportunity to examinations. This wish student in discussions with student-wide project on the topic minations and performance

"students' aberrant behaviors such as cheating still presents the biggest challenge to the instructors who intend to implement take-home testing."

Tao & Li, 2012

Tao, J., & Li, Z. (2012). A case study on computerized take-home testing: Benefits and pitfalls. *International Journal of Technology in Teaching and Learning*, 8(1), 33-43.

A Case Study on Computerized Take-Home Testing: Benefits and Pitfalls

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This paper explores the benefits and pitfalls of computerized take-home testing in an undergraduate curriculum. A case study of how health science course "nutrition" utilized computerized take-home testing is presented. A survey was conducted after the implementation of computerized take-home testing program. After detailed data analysis on students' feedback, advantages and disadvantages of computerized take-home testing are discussed. It is concluded that the biggest advantage of computerized take-home tests is the convenience it brings to both instructors and students, however students' aberrant behaviors such as cheating still presents the biggest challenge to the instructors who intend to implement take-home testing.

Keywords: computerized take-home testing, cheating, advantage, disadvantage, undergraduate curriculum, health science

INTRODUCTION

Since testing consumes such a large amount of instructor and student time in college level courses, it is important to learn as much as possible about the effects of different testing formats (computerized or paper-and-pencil, in-class or take-home) on learning. Computerized testing has become a reality on many campuses with the introduction of robust learning management systems (LMS) such as Blackboard Learn, Moodle, Instructure Canvas and others. Instructors have two options of delivering computerized testing: (a) each student takes the computerized exam in the classroom with the instructor as the proctor; (b) the instructor implements computerized take-home exams. The first option is executable if every student brings his or her laptop to the classroom or the exam has to be administered in a computer lab. The advantage is that the instructor is right there to answer questions and proctors during the test, which makes it highly secure. In the meantime, the instructor can fully enjoy the benefits of computerized testing such as reduced cost of delivery, improved efficiency of administration, and immediate scoring

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Academic Plagiarism and Cheating

College and University Faculty

Exams and Tests

What is the purpose of take-home exams? How can a professor determine whether the student cheated or not?

8 Answers



Thomas Lancaster, Experienced public speaker and researcher on student cheating and plagiarism

Answered November 30, 2018 · Author has 162 answers and 464.7K answer views

A take-home exam is essentially unsupervised coursework. The main difference to most coursework is that it is likely to be much more time constrained.


It is not a particularly good piece of coursework. In particular, most take home exams are very open to contract cheating. We know that the time pressures can push students to contract cheat who would not otherwise have done so, particularly as many people who set take home exams may not consider that students have other commitments and demands on their time.

The take-home lesson from the Harvard cheating scandal

Posted on February 3, 2013 by Adriana Salerno

Last Friday, [Reuters reported](#) that more than half of the students involved in last year’s cheating scandal at Harvard have been suspended. This was even labeled “the largest academic scandal to hit the Ivy League school in recent memory”. In this post, I wanted to discuss my own thoughts on the matter, and more importantly on the general idea of giving take-home exams in a mathematics class.

ACADEMIA



Ethics of take home tests

Asked 2 years ago · Active 10 months ago · Viewed 1k times

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I am in a professional evening program, it is full of students like myself that have full time jobs. Recently we had a professor give us a take home exam that said "no collaboration, no internet usage" (this is because the program is very compressed and doesn't have time for in class exams). When I talked to people about the exam, the first thing out of their mouth was "I'm going to use the internet, that requirement is ridiculous". In my personally opinion no one is going to take the time to exclude themselves from a tool that they use every day because a professor says so.

The professor is quite experienced, but spend a lot of his recent career in administration instead of teaching and is just getting back to being a lecturer.

All courses in this program are curved, so it is disadvantageous to not do what all other students are doing. I would like to let the professor know that his teaching style is very out of date and that saying "no internet" on a take home is guaranteed to be ignored, and frankly doesn't make sense given how modern people learn. (I'm a programmer by trade so if they told me "no internet" at work they might as well fire me)

↑

387

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Posted by u/MrZer 1 year ago

Do profs know that students cheat on take-home exams?

Most classes have multiple choice question tests and they're generally given through our online service (blackboard, moodle, canvas, etc. I'm mentionning this b/c if it was a normal online exam there are anti-cheat measures) But my prof has a complicated test with a lot of diagrams and drawings that students have to complete so they gave us a printed out exam for us to take home. Prof says it's supposed to be closed note but realistically nobody actually listens. I don't know anybody in my class so i won't copy other people's stuff, but I can't help but wonder if they're aware that we'll use our notes and the internet.

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navahan 513 points · 1 year ago

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Yes, they are very aware. Despite this, whether you know the material or not will become very evident as you take higher-level courses where a foundation is essential. So, it is always in your best interest to at least try without notes. Of course, it'd be foolish to not take advantage, but I would use the take-home test as a measurement of your understanding in the field. And one that

Täuschungsmethoden in der Praxis

- a) Nutzung unerlaubter Materialien
- b) Verabredete Kollaboration
- c) Technische Maßnahmen („Hacking“)



“there is still a lot of research missing concerning take-home exams in higher education and some of this research may be urgent”

Bengtsson, 2019





Elektronische Prüfungsportfolios

Prüfungsportfolios sind
(digitale) Sammlungen von
Leistungsartefakten anhand
klarer Vorgaben, um die
Erreichung festgelegter
Lernziele sowie den Erwerb
unterschiedlicher Kompetenzen
zu dokumentieren.

TO PORTFOLIO OR NOT TO PORTFOLIO HELPFUL OR HYPED?

Judy Lombardi

Abstract. Portfolios have received mixed but primarily positive reviews in colleges and universities. The portfolio offers a tool of authentic assessment as well as an opportunity for students to be reflective practitioners. Portfolio implementation and evaluation has become a feature of many university departments. The author describes different approaches to portfolios, as well as the origins of and research related to portfolio use.

Keywords: *assessment, education, portfolio, writing*

The portfolio is probably the single most important reason I am resigning my position at this university. The portfolio seems like overkill, big time. I will say that once completed, the ones done well are treasured by the student teachers. However, I think their feelings are based mainly on the extraordinary amount of work that went into the preparation. I doubt if anyone has ever used a portfolio to get a job. And preparing twenty-six entries for one portfolio? Bah humbug.

This quote from an individual at my university, who supervised student teachers in the field for years

Judy Lombardi is an associate professor of secondary education at California State University-Northridge and coordinator of the secondary accelerated collaborative teaching program. Copyright © 2008 Heldref Publications

and helped score stacks of portfolios, reflects some of the current antipathy toward portfolio development and scoring in college and university departments.

Not all commentary on portfolios is negative, however, as evidenced by the upbeat tone of Kalamazoo College (Michigan) in providing information to students on portfolios:

The Kalamazoo Portfolio is a tool designed to help you make informed decisions about your educational path. It's part journal, part goal sheet, and part educational map. It's a series of Web pages which you'll save in your e-mail account (don't worry about privacy; it's easy to lock your Portfolio). It's also a graduation requirement and part of the academic advising process. And though it may seem like extra work at first, it is a

very useful tool to help you get the most out of your Kalamazoo College education. (Biziorek 2003)

Portfolios have become a fixture in higher education institutions across wide variety of academic fields. They have evolved in form, type, and purpose and have a rich history in many disciplines.

Where Did Portfolios and Portfolios Come From, Anyway?

For decades, portfolios have served as evaluative tools of fine arts and creative writing departments, as students looked for ways to showcase their best work. The early roots of today's portfolios can be traced to the mid-1980s, with the work of Peter Elbow and Pat Belanoff (1986), who served as administrators for a writing program with a written exit exam. Elbow and Belanoff, dissatisfied with the holistic scoring method used on the exam, experimented with portfolios. Their students submitted folders with writing across several genres, rather than only one. A new emphasis on process over product occurred as well.

In the late 1980s and early 1990s, portfolio-based programs emerged at Purdue University, Miami University of Ohio, and the University of Michigan; the junior portfolio program at Washington State University also appeared (Beagle 2004). Portfolios were generally divided into two categories: the process portfolio or the product portfolio. Process-oriented work demonstrates the

Using Students' Portfolios to Assess Mathematical Understanding

In 1988, NCTM published the *Curriculum and Evaluation Standards for School Mathematics*, which presented the mathematics profession with a broad view of the important mathematics that should be taught in schools. Two years later, the *Professional Standards for Teaching Mathematics* gave teachers the opportunity to address the pedagogical issues inherent in teaching a broad-based, thinking curriculum as described in the curriculum standards. The next link, assessment, though part of the first document, required specific attention. *Assessment Standards for School Mathematics*, currently in progress, will present the criteria for judging the appropriateness and quality of assessment tools and systems.

Teachers continuously assess their students' progress in the course of day-to-day instruction. This informal assessment is not valued when such traditional tools as standardized testing are used for external—and high-stakes—assessment. The *Assessment Standards* document will outline a framework that values the role teachers play in assessing their students' work and will recommend ways in which the internal assessment can be used as part of external systems of assessment. The assessment standards are based on the assumption that teachers develop a useful, uniquely detailed sense of what their students know and can do through constant interactions with their students. One assessment tool that weighs the work each student does and the progress made, while illustrating the whole classroom for external assessment, is the student's portfolio.

Portfolios have long been used successfully to evaluate a student's work in the arts and writing. In recent years, mathematics teachers have used portfolios in their classrooms to make instructional decisions. The mathematics education community is currently trying to define what it means to use mathematics portfolios as a way to assess what students are learning.

Portfolios in Teacher Education

James Barton, University of Rhode Island
Angelo Collins, Florida State University

There is a new room in Dewey Hall, the college of education building. On the right side of the room, library shelves contain accordion folders, ring binders, and encased videotapes. To the left are other containers—plastic bins, crates, garbage bags, and bulging brief cases. Across the back wall are the typical accessories of an education professional: a copy machine, a word processor, a videotape editing machine, a work table with a paper cutter, scissors, tape, paper clips, pens, pencils, and high lighters. Several mobiles hang from the ceiling. Down the center of the room are library tables with straight chairs and scattered to the sides are lounge chairs where prospective teachers await the meaning of collected evidence. A child's red wagon and a grocery cart stand in the corner next to an oversized art case.

The room is the college's portfolio work storage room. In this room a new vision of teacher education is becoming a reality. Here teacher education students give substance to their personal ideas about the knowledge, beliefs, and skills of a teacher. Here teacher portfolios are designed and developed. The experience of developing a portfolio provides the prospective teacher opportunities to become decision makers about curriculum, to develop various instructional repertoires, to create productive classroom environments. Faculty who design the portfolios use the design process as a tool to enable both prospective and practicing teachers to integrate theory and practice about teaching, learning, knowledge, students, and the school milieu.

In this article, we share a model for a teacher education portfolio. We present reasons why portfolios might be used for assessing teacher education programs, delineate characteristics of an educational portfolio, and describe how one might design and develop portfolios. We

WHY USE PORTFOLIOS IN THE MATHEMATICS CLASSROOM?

The use of portfolios to assess students' progress toward important goals offers many advantages. As students begin to work on portfolios, they take an active role and assume some responsibility in their own assessment. When they judge the quality of their work while selecting the pieces to be included, they begin to reflect on their own learning and on ways to prove it. Portfolios contain with on-demand assessment in that they allow students to include work at different stages of completion as drafts, revisions, and final versions. In so doing, students can include pieces of longer, sustained work completed in and outside the classroom.

As a work in progress, student portfolios and their teachers' concrete evidence of the progress made toward preestablished goals and yield more information about what and how students learn than do other, more traditional forms of assessment. Continually examining the contents of the portfolios in progress presents opportunities for midcourse adjustments that students and teachers can make in their instructional interaction. Finally, collectively and as finished products, portfolios are a way for students, teachers, parents, and external assessors to communicate and share expectations about students' learning. This process is the foundation of a standards-based educational system. Portfolios are a permanent record of student understanding and accomplishments at various

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THE MATHEMATICS TEACHER

The Use of Student Portfolios in Engineering Instruction

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ABSTRACT

Student portfolios are listed as a possible means of assessment under the basic level accreditation criteria ABET "Engineering Criteria 2000." Efforts to initiate student portfolios in engineering instruction have been reported anecdotally in the literature, but a formal study on student portfolios in engineering has not been presented. We assigned student portfolios to freshmen and senior biological engineering core courses containing a significant design component, and evaluated their effectiveness based on exit surveys, course evaluations, and instructor reflection. Portfolios were used to initiate student-centered learning, and to address the assessment issues raised by ABET. Results showed that 78% of senior and 80% of freshmen believed that the use of student portfolios enhanced their learning. Among the freshmen, 69% of those students who were identified as sensing types by the Myers-Briggs Type Indicator found portfolios useful, while 57% of the intuitive types found them useful. In this paper, the methodologies for using portfolios are detailed, the results of applying the portfolio method are presented, and implications and recommendations are discussed.

1. INTRODUCTION

The Accreditation Board of Engineering and Technology (ABET) recently published Engineering Criteria 2000, which sets new standards for evaluating and accrediting engineering programs in the United States.¹ The criteria are purposefully non-prescriptive in nature to encourage innovation in engineering education. Proceedings from the National Conference on Outcomes Assessment for Engineering Education reflect educators' frustration with this issue. The process for implementing new means of assessment will be iterative in nature, and will involve collaboration among educators, industry leaders, accreditors, and stakeholders.²

Engineering Criteria 2000 cited the student portfolio as a possible means for meeting criterion three: program outcomes and assessment. Shackelford defined the student portfolio as "a purposeful collection of materials capable of communicating a student's work."

Engineering Criteria 2000 cited the student portfolio as a possible means for meeting criterion three: program outcomes and assessment. Shackelford defined the student portfolio as "a purposeful collection of materials capable of communicating a student's work."

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interests, abilities, progress, and accomplishments in a given area." Portfolios are a useful tool in assessing learning because they require students to review their work and engage in a process of reflection, selection, and description.³

While student portfolios have long been used to document student learning and mastery in subject areas such as art, journalism, and architecture, their use in engineering education has been a relatively recent phenomenon,^{4,5} with little supporting literature.^{6,7} Painter⁸ briefly described the use of student portfolios in technical courses at five universities. Oke⁹ illustrated the use of student portfolios in assessing engineering students' writing skills. Cross and McCullough-Cross¹⁰ discussed portfolios in engineering courses as a means of reflective assessment. Johnson¹¹ used the student portfolio in conjunction with a professional development course for engineers.

We have used student portfolios in an effort to initiate student-centered learning. The portfolio method encourages students to take greater responsibility for their own learning, and makes explicit the life-long nature of engineering education. Our hope is that if students are given more proactive roles in their learning process, they will better comprehend engineering concepts and their future roles as practicing engineers.

The following study evolved from our on-going dialogue about student-centered learning, and from participation at The Ohio State University (OSU) in a course entitled College Teaching in Engineering. Our objectives were: 1) to develop a portfolio method for engineering students taking our courses, 2) to evaluate the success of portfolios in terms of learning and assessment, and 3) to reflect on the use of this instrument and make recommendations for future work. This paper documents the first year of implementing these objectives.

II. METHODS

A. Course Description

AE 625: Modeling and Design of Biological Systems. This is a senior level core course in OSU's agricultural engineering program. The topics for this course include enzyme kinetics; simulation of animal, plant, and microbial growth; and the analysis and design of engineered systems that include biological components and processes. Design examples and assignments were drawn from the food, agricultural, and environmental fields and were divided into six categories: homework, laboratory reports, examinations, individual student presentations, design projects, and other optional items of the students' own choosing. Twenty-five students, including five graduate students, were enrolled in this course.

AE 1222: Biology in Engineering. This freshman core course



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Using portfolios to assess the writing of ESL students: a powerful alternative?

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Abstract

This article describes a quantitative study that compared the performance of two groups of advanced ESL students in ENG 22, a second semester composition course. Both groups had been enrolled in ENG C2, a compensatory version of Freshman English for students with scores one level below passing on the CUNY Writing Assessment Test (WAT). At the end of ENG C2, one group was assessed on the basis of portfolios, as well as the CUNY WAT; the other was assessed using the WAT. Comparable percentages of students in both groups passed the WAT at the end of C2. However, students from the portfolio group with passing portfolios were permitted to advance to ENG 22 regardless of their performance on the WAT, while students in the non-portfolio group moved ahead only if they had passed the WAT. (The WAT remains a graduation requirement for all students.) The study found that students were twice as likely to pass into ENG 22 from ENG C2 when they were evaluated by portfolio than when they were required to pass the WAT. Nevertheless, at the end of ENG 22, the pass rate and grade distribution for the two groups were nearly identical. Because portfolio assessment was able to identify more than twice the number of ESL students who proved successful in the next English course, however, it seems a more appropriate assessment alternative for the ESL population. © 2002 Elsevier Science Inc. All rights reserved.

Keywords: Portfolio assessment; ESL students; CUNY WAT

Introduction

Portfolio assessment of writing, which incorporates several diverse writing samples produced at different times, has often seemed ideally suited to programs

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Improving Assessment in University Economics

William B. Walstad

Abstract: The author discusses the following seven issues affecting assessment of undergraduates in universities: decisionmaking and the selection of tests, the use of written and oral assignments to measure learning, the characteristics of grades and portfolios for evaluating students, opportunities for self-assessment and feedback to instructors, retention of learning and the testing for higher-order thinking, the psychology of students in the economics classroom, and the development of new tests as public goods. The author suggests ways that economics faculty can add new dimensions to their assessment practices, improve their understanding of assessment choices, use assessment to enhance the quality of student thinking, and conduct research studies on assessment questions.

Key words: active learning, assessment, economics courses, research, testing
JEL code: A22

Assessment is an integral part of faculty teaching and student learning in university economics. Economics instructors spend a substantial amount of time evaluating student economic understanding through classroom tests, quizzes, homework, papers, and projects. They then use that information to assign course grades. Assessment, however, goes well beyond testing and grading. Instructors can use a variety of classroom assessment techniques to obtain feedback from students to identify learning problems and guide their teaching efforts (Angelo and Cross 1993). These learning activities also give students an opportunity to check their understanding and prepare themselves for class and to do assignments. Assessment is thus a multi-dimensional activity and information resource for economics teachers and students, a theme that will be emphasized throughout this article.

What follows is a discussion of seven issues that illustrate the multi-faceted nature of assessment. Economics faculty members should consider each one to understand the full range of assessment work and choices in economic education. Some of the issues, such as selecting a test or obtaining student feedback, are thought about primarily by teaching professors. Other issues, such as student portfolios or retention of knowledge, cut across courses or majors and are considered over longer time periods. Still other issues, such as student psychology

William B. Walstad is a professor of economics and director, National Center for Research in Economic Education, University of Utah. He is married to Susan Walstad. Helpful comments were provided by Sam Algood, William Becker, Carol Johnston, Peter Kennedy, Sam McDonald, Ken Rebeck, Michael Salem, and Michael Watts.

Summer 2001

Portfolio assessment in medical students' final examinations

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SUMMARY: The introduction of an outcome-based approach to learning in Dundee Medical School in Scotland prompted a search for assessment methods that would appropriately assess the students' achievements in terms of the learning outcomes. Portfolio assessment has been developed for this purpose and has been adopted for the summative assessment of students in their final examination in Dundee. The contents of the portfolio and the assessment process have been described in this paper. The results of the study to be assessed in this way have been studied. The evaluation of the approach demonstrated strong staff support. Students were also positive although with some reservations. It is concluded that portfolio assessment is a powerful approach to assessing a range of curriculum outcomes not easily assessed by other methods and is worthy of inclusion in the assessor's toolkit.

Introduction

Assessment of student performance in the final examination is perhaps one of the most important responsibilities of the medical teacher. Traditional finals have included both written and clinical examinations in a range of individual disciplines. Unstructured clinical and viva voce examinations and the use of essays have been criticized in the past (Stokes, 1974; Newble, 1992) and to address these criticisms approaches such as the objective structured clinical examination (OSCE) (Harden & Gleeson, 1979) were introduced to assess clinical competence.

Assessment, however, has not kept pace with curriculum change (Harden, 1990) and insufficient research has been carried out into assessment. The General Medical Council (GMC, 1993) in *Tomorrow's Doctor*, for example, highlighted the need to move to more integrated forms of assessment in line with curriculum change. "It is essential that assessment systems adequately test the achievement of these [curriculum] goals and that they reflect the integrated nature of the curriculum." (p. 18)

The problem has been put into sharp focus by an increasing emphasis on outcome-based education (Harden, Crosby & Davis, 1999), where the various competencies that are needed to make a good doctor and that require to be tested, are specified. It is a major challenge to develop robust methods that will assess whether students have or have not reached the required standard in the curriculum outcomes at the end of their undergraduate training.

Portfolios offer a possible tool and have been used for assessment purposes for some time in a range of areas, in particular the fine arts and architecture. A portfolio is a

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LEARNING PORTFOLIO AS A TOOL FOR ASSESSING COMPETENCES IN PHYSICAL CHEMISTRY

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Abstract

Physical Chemistry is a classic discipline in Chemistry, Chemical Engineering and Pharmacy curricula. Its structure is based on many different knowledge areas, which may lead to an inappropriate, disperse and poor study of its contents. The introduction of the European Higher Education Area (EHEA) has triggered a deep review of the Physical Chemistry syllabus in the BSc (Graduate) in Chemistry. In addition it has led to an update and a redistribution of its content in more basic and condensed subjects that deal with fundamental aspects, leaving all specific and more novel (advanced) contents to Master and Doctorate studies. This new redistribution should have a set of proper assessment methods focused on competences and on continuous evaluation. In this work, a new evaluation model is presented based on the use of the learning portfolio as working tool; each student is continuously assessed not only from a grading perspective but also from a formative point of view, i.e. with an explicit indication of the level achieved for each competence.

Keywords: Formative assessment, competences, learning portfolio, physical chemistry.

1 INTRODUCTION

Among all classical Chemistry areas, Physical Chemistry has a rather multidisciplinary nature [1], ranging from the macroscopic study of thermodynamics and physical chemistry (chemical kinetics) to the properties of matter in the microscopic realm (quantum chemistry and spectroscopy), as well as the principles that relate both (statistical thermodynamics). Moreover, the present structure of university studies implies a new teaching-learning model, based on a more basic and condensed subjects that deal with fundamental aspects, leaving all specific and more novel (advanced) contents to Master and Doctorate studies. This new redistribution should have a set of proper assessment methods focused on competences and on continuous evaluation. In this work, a new evaluation model is presented based on the use of the learning portfolio as working tool; each student is continuously assessed not only from a grading perspective but also from a formative point of view, i.e. with an explicit indication of the level achieved for each competence.

The multifaceted Physical Chemistry syllabus can lead some teachers to provide their students with a fragmented and diluted course of concepts and skills. Therefore, it is of utmost importance to carefully determine with other areas, such as chemistry, physics and inorganic chemistry, isolation, equilibria in Analytical Chemistry, or spectroscopy in Organic Chemistry. This analysis should lead to restructure the subjects in a way that provide not only specific contents from the area, but also concepts and techniques that are applicable and have value in the other Chemistry areas [1]. In addition, the incorporation of modern contents related with actual research could be tempting but it should not shade the learning of fundamental aspects [4]. In this sense, the present grades (Bachelor) and master structure tries to balance the area subjects in a more coherent way across their topics and demanding level, splitting them from more specialized and modern topics that appear either as elective or master subjects [5].

Regardless of the ongoing efforts, the new curricula structure does not warrant any significant improvement on what students learn: a new assessment system is required. In the European Higher Education Area (EHEA) framework, guarantees the competence acquisition, life-long learning and a more appropriate employment procedure in line with ever changing society [6]. With these assumptions, the Spanish National Institute for Qualification (INIAU) related the professional formation system creating a common document for all professional branches and degrees: the National Qualifications Catalogue (CNCP) that "organizes all professional qualifications that are prone to be recognized and accredited, provided they belong to the productive system [7, 8]. In the framework of the Spanish 5/2002 bylaw, a professional qualification is conceived as a set of

Traditionell werden Portfolios ergänzend zu summativen Abschlussprüfungen eingesetzt.

Dort ermöglichen sie eine formative Steuerung des Kompetenzerwerbs.

Eignung vor allem auf höheren Kompetenzebenen



Grad der Auseinandersetzung mit Aufgaben und Leistungsgüte sind abhängig von Art und Qualität des Feedbacks

Portfolios verbessern die spätere Prüfungsleistung oft nur wenig.

The relationship between students' perceptions of portfolio assessment practice and their approaches to learning

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This study focuses on students' learning approaches in the context of a competency-based program on Applied Sciences, with portfolio assessment as its core mode of assessment. The study examines students' perceptions of these assessment practices and the relationships to their learning approaches. Additionally, differences in perceptions and learning approaches between first-year students and second-year students, who already have one year of experience with the portfolio assessment practice, are investigated. A total of 110 students' questionnaires at the end of the academic year: the Revised CPQ (Cognitive Process Questionnaire) was used to measure their approach.

Effectiveness and Management of Portfolio Assessment in High-Enrollment Courses

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ABSTRACT

Six hundred undergraduate students enrolled in two large lecture sections of introductory environmental geology were monitored to study the impact of portfolio assessment on student achievement and attitudes. One group was administered four traditional examinations. The other group took the final examination only and prepared an assessment portfolio. A comparison of scores on identical final examinations and a common attitude survey demonstrated that there was no statistically significant difference between the two groups. Focus-group interviews revealed that most students liked the responsibility and freedom when allowed to prepare portfolios. Further interviews suggest that the principle management issues of plagiarism, portfolio safekeeping, and consistent scoring can be addressed effectively and in an organized fashion. The results of this study suggest that portfolio-style assessment procedures support student achievement at least at the same level as traditional assessment procedures and appear to have additional benefits.

Keywords: Education – geoscience; education – testing and evaluation; education – undergraduate; engineering and environmental geology.

INTRODUCTION

Current reform efforts in science education require aligning testing and grading strategies to be consistent with new teaching goals (Tobias and Raphael, 1995; Carpenter, 1995). Student-created assessment portfolios are one alternative to the traditional multiple-choice tests often used for undergraduate courses aimed at non-science majors. These portfolio-style assessment strategies transfer the responsibility for assessing learning geology from the instructor to the student (Slater, 1994; Collins, 1992). It is hoped that new assessment strategies will increase the accessibility of science for all students.

The necessity of creating alternatives to multiple-choice tests have already been described, documented, and discussed (see Fuhrman, 1994; Slater, 1994; and Slater and Astwood, 1995).

Previously in this journal, the authors described a strategy for using and grading undergraduate student-assessment portfolios in the context of a high-enrollment, introductory course in environmental geology (Slater and Astwood, 1995). This article describes the summative evaluation of portfolio-assessment procedures in such a context and constitutes the second part of that article. A description of the impact of using portfolios on student achievement and attitudes is central to a department's decision to implement such a strategy.

RESEARCH DESIGN

There were two central questions for this study. First, how effective are portfolios at enhancing student achievement and attitudes toward environmental science and, second, what are the principle management issues for using portfolio assessment in the context of a high-enrollment course for undergraduates? These questions were addressed using a two-group-comparison design.

Six-hundred undergraduate, non-science majors at a major southern university were used in this study. Group T (for traditional) was composed of 310 students enrolled in the spring semester of GEOL 103, *Introductory Environmental Geology*. Group P (for portfolio) was composed of 290 students enrolled in the fall semester of the same course. Both groups had roughly equal numbers of males and females. Both courses were taught by the same instructor and were composed of 45 hours of lecture instruction and 24 hours of laboratory instruction led by a graduate teaching assistant. The laboratory sessions had 17 to 24 students each.

Group T Treatment

Students in Group T were assessed using three, 50 item, multiple-choice tests and one final examination. These students were also administered an 18 item Likert-style attitude survey about their perceptions of instruction, their own level of achievement, and attitudes toward several environmental issues presented in the context of the class. The course grade was determined using 60% from the tests and final examination (all equally weighted) and 40% from the laboratory assignments.

Positive Einstellungen von Studierenden gegenüber Prüfungsportfolios erst nach intensiver Einführung

Gute psychometrische Qualität der Beurteilung und Übereinstimmung mit Abschlussnoten



Viele Leistungsartefakte im Rahmen eines Portfolios sind im Kern wieder Prüfungen mit den bereits beschriebenen Herausforderungen.





Take-Home

- ⊕ Die Kriterien guter Prüfung haben sich für Elektronische Prüfungen nicht verändert, aber erweitert.
- ⊕ Evaluation findet auf erhöhten Datenmengen statt.
- ⊕ Evidenz zu alternativen Prüfungsformaten ist durchgewachsen
- ⊕ Bei Take-Home Prüfungen sind Vorsicht und Kontrolle unbedingt geboten.

A photograph of a brick wall at night. A neon sign is mounted on the wall, consisting of white neon tubes forming the letters. The sign reads "THIS IS THE SIGN YOU'VE BEEN LOOKING FOR" in all caps, arranged in five lines. The sign is illuminated, casting a warm glow on the surrounding bricks. The background is dark, suggesting it is nighttime.

THIS IS
THE SIGN
YOU'VE BEEN
LOOKING FOR

<https://unsplash.com/photos/FHnnjk1Yj7Y>
<https://unsplash.com/photos/9dYwCScW0Rs>
<https://bit.ly/3nCO1IX>
<https://youtu.be/HoTc80ovYhU>
<https://unsplash.com/photos/hGV2TfOh0ns>
<https://unsplash.com/photos/nJdwUHmaY8A>
<https://unsplash.com/photos/I3cdTVfYUg8>
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