# Elektronische Prüfungen

Prüfungsformate für das Digitale 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





Die Durchführung von Präsenzprüfungen an Hochschulen ist erheblich eingeschränkt.

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











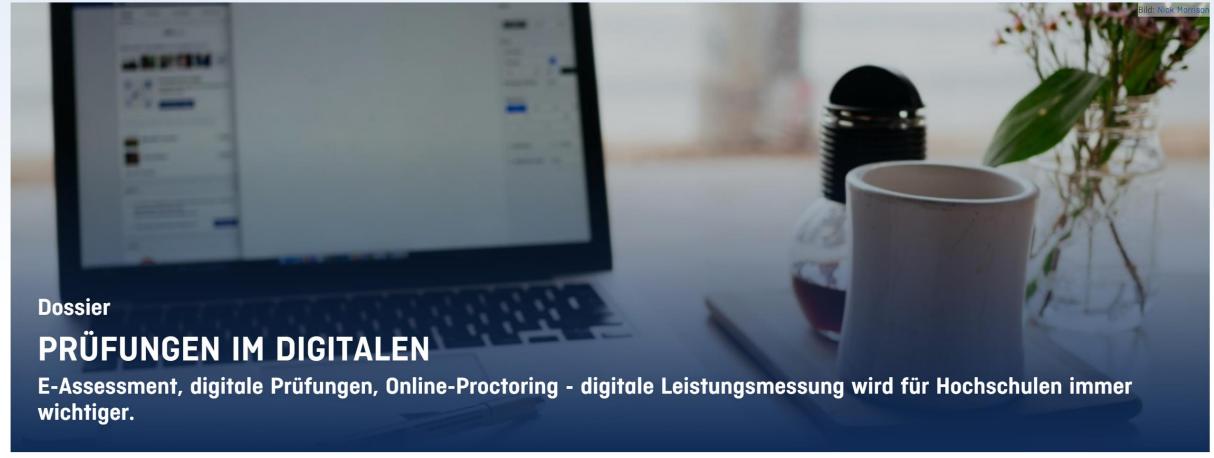












**Leseempfehlung:** https://hochschulforumdigitalisierung.de/de/dossiers/pruefungen-im-digitalen

# 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



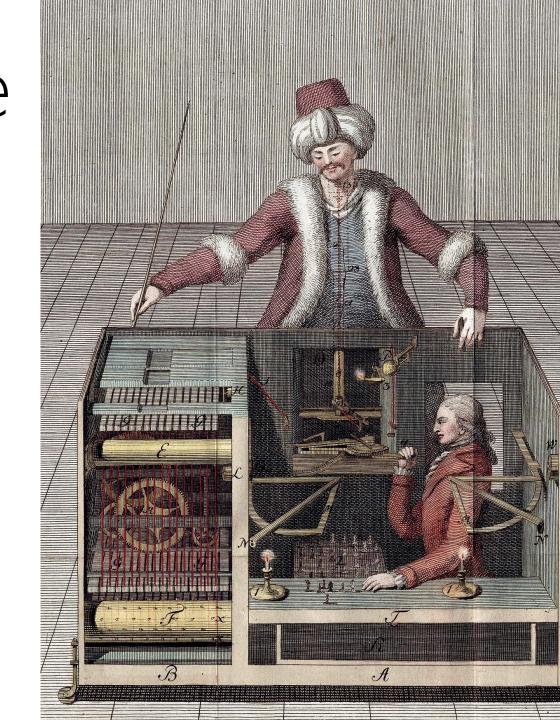
# Täuschungsversuche mit Beteiligung Dritter

Kopieren der Lösungen

Dritte im Raum oder akustisch zugeschaltet

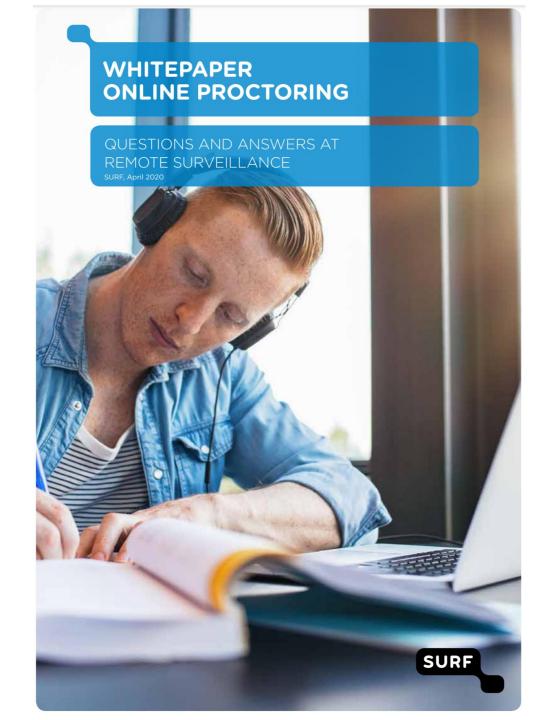
Übertragung und/oder Fernsteuerung des PC ("Schachtürke")

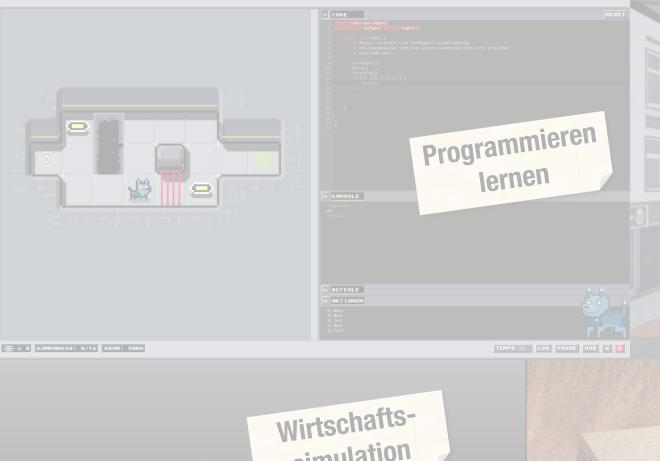
Ersetzen der digitalen Prüfungsdatei





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).





# Digitale Prüfungsformate

Mikro-Stadtplanung

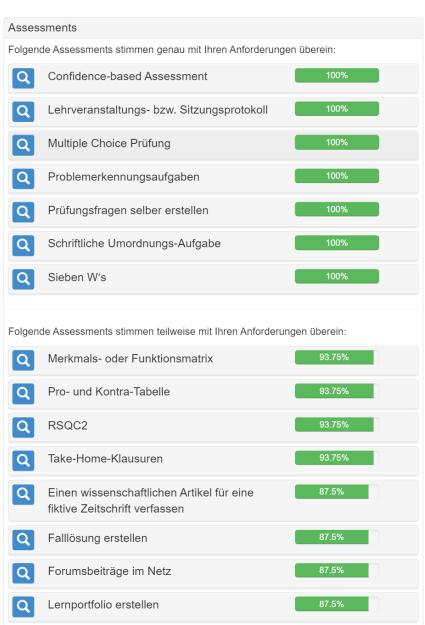




Plattform	Entwickler	URL	kommerziell	Aufgabenformate
Dynexite	RWTH Aachen	https://dynexite.rwth-aachen.de/	nein	Multiple-Choice-Aufgaben, Single-Choice-Aufgaben, Lückentext-Aufgaben, Ergebniseingabe-Aufgaben, Klassifikationsaufgaben, Freitextaufgaben, Buchungssätze, Tabelleneingabe
ILIAS	Uni zu Köln	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-Choi Wahr/Falsch-Aufgaben, segmentierte c (ICR), Kprim-Aufgaben, Zuordnungsauf
LPLUS	LPLUS GmbH	https://lplus.de/	ja	Multiple-Choice-Aufgaben, Single-Choi Freitextaufgaben, Numerische Aufgabe Anordnungsaufgaben, Fehlertext-Aufga Aufgaben (Cluster)
ONYX	BPS Bildungsportal Sachsen GmbH	https://www.bps-system.de/onyx-testsuite/	ja	Multiple-Choice-Aufgaben, Single-Choi Freitextaufgaben, Drag/Drop-Aufgaben Datei-Upload-Aufgaben, Numerische A
Q-Exam	IQUL GmbH	https://www.q-exam.net/	ja	Multiple-Choice Aufgaben, Single-Choice Freitextaufgaben, Zuordnungsaufgaber Klassifikationsaufgaben

https://tinyurl.com/x7eyydvx

Prüflinge	Ergebnisse
	Schriftliche Darlegung
5	Mündliche Erörterung
5	Praktische Handlung
30	Fachspezifisches Produkt
)	
dbackquellen	Aufgabentypen
łbackquellen	Aufgabentypen
	Aufgabentypen  Reproduktion (Fakten erinnern)
bstbeurteilung	
lbstbeurteilung hrperson / Dozierende	Reproduktion (Fakten erinnern)
dibackquellen elbstbeurteilung ehrperson / Dozierende ebach / Mentor / Praktikumsleitung	Reproduktion (Fakten erinnern)  Interpretation (Konzepte/Modelle beschreiben)
hrperson / Dozierende  pach / Mentor / Praktikumsleitung	Reproduktion (Fakten erinnern)  Interpretation (Konzepte/Modelle beschreiben)  Anwendung (Verfahren ausführen / Erkenntnisse übertragen)
bstbeurteilung  urperson / Dozierende  ach / Mentor / Praktikumsleitung  orin / Teaching Assistant  pertin / Assessor	Reproduktion (Fakten erinnern)  Interpretation (Konzepte/Modelle beschreiben)  Anwendung (Verfahren ausführen / Erkenntnisse übertragen)  Analyse (Zusammenhänge ermitteln)
Ibstbeurteilung  Inrperson / Dozierende  Insperson / Mentor / Praktikumsleitung  Itorin / Teaching Assistant	Reproduktion (Fakten erinnern)  Interpretation (Konzepte/Modelle beschreiben)  Anwendung (Verfahren ausführen / Erkenntnisse übertragen)  Analyse (Zusammenhänge ermitteln)  Evaluation (Kriterienorientiert beurteilen)





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

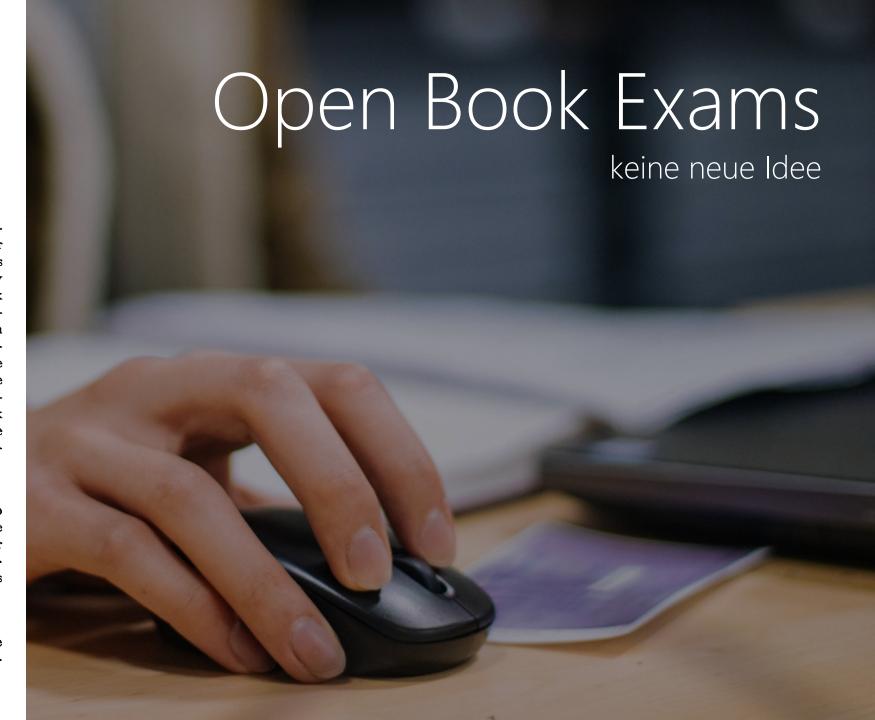
Teachers at all levels continue to show some interest in the open-book examination as a measurement technique which may offer solutions to problems associated with closed-book testing. Tussing's (1951) general discussion of the open-book test presents highly optimistic conclusions concerning the advantages 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-



# Oft verwendetes Mittel im Digitalen Semester

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

Eignung vor allem auf höheren Kompetenzeben

Didaktische Qualität der Klausuren steigt

Educational Review, Vol. 34, No. 1, 1982

## A Case for Open-Book Examinations

JOHN FRANCIS, The Associated Examining Board, Aldershot

Investigations in shown that they reduce studen An investigation into the effec in English Literature showed to use texts and notes in the

than their peers who took a Secondary school examin recent years; not only ha appropriateness of tradit

vances have been made

attempted to assess studuring their course of s or during further study craft design problems,



Open-Book Examinations for Assessing Higher Cognitive Abilities

n open-book exam permits the rate and extensive recall, and unless of other considerations as well, some of

sees to consult some carefully designed, its assessment of which are summarized in Table 1. There is

sucledge is likely to be little reported research on the subject, h of it surveyed in [2] and [3], and potential advantages and weakes listed in Table 1 are based more xperience and belief rather than on sults of rigorous educational arch and longitudinal studies.

> ams for Open-Book Exams expected benefits of open-book

are to accrue, the instructors aring the exam questions must first in to take advantage of the format.

Selection of exam questions usually

sts on multiple considerations, such as he need for a broad sampling of the submatter to avoid an uneven emphasis in

rage; this leads to a preference for a arger number of problems, in turn ecreasing the amount of time available

or 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

xaminees), 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 cogni-

tive workload at a reasonable level. In a

Assessing open-book examination in medical education: The time is now Ivry Zagury-Orly<sup>a</sup> 🌀 and Steven J. Durning<sup>b</sup> 🌀

\*Faculty of Medicine, Université de Montréal, Montreal, Canada; \*\*Center for Health Professions Education, Uniformed Services University

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 offer ways in which we believe they can complement closed-book exams. We rethink the role of open-book assertional or the properties of the propertie 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 future directions and call on medical educars. We highlight the gap in 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.

### medical education;

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 highstakes 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 moniwith reason: definitive evidence supporting the use of one over the other is lacking (Durning et al. 2016). As several cal learners can be significant (D'Eon 2006).

\*\*Recognizing the limits of rote memorization of the memoriz others choose to hold in-person classes in the fall, despite the risk of a second lockdown, we must embrace our win-

the decision to use CBEs or OBEs. On the one hand cates for CBE generally contend the

On the other hand, proponents of OBE argue that OBEs allow educators to pose questions that require higher-order cognitive skills and critical thinking, beyond rote memorization (Duming et al. 2016). The threat of not assessing learners' knowledge could be overcome by time-pressured tests, vised to test-taking programs with audio and video monitoring and fingerprint identification (Fuller et al. 2020). As and Roberts 2017; Fuller et al. 2020, which are not only less searchable but also help to uncover learners' reasoning and challenge their thinking. And although mortical know. leaving little time to look up everything (Durning et al. and Roberts 2017; Fuller et al. 2020), which are not only and challenge their thinking. And although medical knowledge is a core competency, knowledge loss among med-

the risk of a second lockdown, we must embrace our window of opportunity to investigate the use of online OBEs by the Federation of State Medical Boards (FSMB) and the and explore previously unexamined possibilities for learn
National Board of Medical Examinars (MRASS) ent with the adoption of the flipped classroom model

December 2007

## Tendenziell höhere Vorbereitungszeit/-qualität und Anwesenheit bei CBE

Unveränderte Lernstrategien

Eher bessere Prüfungsleistungen bei CBE

Vergleichbare psychometrische Qualität

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

and Kevin Eva, PhD

### Abstract

To compare the relative utility of openbook examinations (OBEs) and closedbook examinations (CBEs) given the rapid expansion and accessibility of

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

Today's health care profession students and trainees have acc to an unprecedented amount information thanks to the ra expansion of knowledge and emergence of information t This easy access to informa fundamental questions abq adequacy of closed-book (CBE) practices common the health professions. Sq argue that any examinat must assess the examine find, understand, evaluexternal resources. Suc of the open-book exar argue that OBEs are n to real-world practice is not about "rote me

Correspondence shou I. Durning, Departme J. Durning, Department Services University of the Jones Bridge Rd., Bethe (301) 295-3603; e-mai

Acad Med. 2016;91 First published online doi: 10.1097/ACM.0 Supplemental digit available at http://l

Academic Med

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

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 = 30; 81%); (4) psychometrics and (6): (5) testing effects

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

### A Comparison of Take-Home Versus In-Class Exams

### ROBERT MARSH

Community Counseling Center Fort Brugg, North Carolina

ABSTRACT This study attempted to determine if the currently popular take-home exam was as effective a learning vehicle as is the traditional in-class exam. Ten classes from live 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 unannounced 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. Three two-way analyses of variance (ANOVA) indicated that 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 inclass exam. The results suggested that the in-class exam produced a greater amount of study and learning in a college-level

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 belief that the take-home test is as effective. Thus, the current trend toward eliminating formal written tests may actually operate against one of education's major goals, student retention of learned concepts.

Probably the major concern over classroom exams is that they cause debilitating anxiety. However, research on this claim is inconsistent. For example, it has been

plished 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, Silbeman, & Lehr, 1971).

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

## 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 BAILLIE<sup>1</sup> & SUSAN TOOHEY<sup>2</sup>, <sup>1</sup>Department of Materials, Imperial College of Science Technology and Medicine, London, UK; <sup>2</sup>Professional Development Centre, University of New South Wales, Sydney, Australia

### TAKE HOME TESTS: An Experimental Study

ABSTRACT This paper ex assessment in a materials as discussed with reference to in students at university. The format final exam, with e Student response was evalunominal group technique answers using the SOLO with those of students take

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

The take home test was compared with the conventional closed and open book cantly higher with the take answers.

Springer 2006

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

Open-book Tests to Complement Assessmentprogrammes: Analysis of Open and Closed-book Tests

### M. HEIJNE-PENNINGA<sup>1,8</sup>, J. B. M. KUKS<sup>1</sup>, J. SCHÖNROCK-ADEMA<sup>2</sup>, T. A. B. SNIJDERS<sup>3</sup> and J. COHEN-SCHOTANUS<sup>2</sup>

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<sup>1</sup>Institute for Medical Education, University of Groningen and University Medical Center

<sup>2</sup>Groningen, A. Deusinglaan 1, 9713, AV, Groningen, The Netherlands; <sup>2</sup>Center for Research and

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forningen, A. Deusinglaan 1, 9713, AV, Groningen, The Netherlands; <sup>3</sup>Foculty of Behavioural and

Social Sciences, University of Groningen, Groningen, The Netherlands \*author for

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E-mail: m.penninga@med.unicg.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=435and N=449) with multilevel analysis, in accordance with generalizability theory. The reliability of the open and closed-book sections of the separate tests varied between 0.712 and 0.850. The open-book items reduce 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 mon practice for many college faculty to ate to study them in order to determine if their use as a viable alternative to assessphenomena associated with take home pes of examinations: the conventional and the take home test. Specific quesnation about the following:

ions associated with the type of examor take home)?

nt on items which purport to measure it on items which purport to measure

ward the three exam modes?

rebs, Virginia Polytechnic Institute and

ress, Inc. Vol. 18, No. 2, 1983

473

Keinerlei Vorteile bei CSF hinsichtlich Prüfungsleistung

Vorbereitungszeit bei CSE tendenziell länger

Stress und Prüfungsangst bei CSE höher als bei OBE/OWE

Keine vermehrten Täuschungsfälle in allen Varianten



Psychology Research, ISSN 2159-5542 August 2012, Vol. 2, No. 8, 469-478

### Cheat Sheet or Open-Book? A Comparison of the Effects of Exam Types on Performance, Retention, and Anxiety\*

Afshin Gharib, William Phillips, Noelle Mathew se of California, California, USA

DOI: 10.7763/IPEDR. 2012. V53. 1

The differences between exam than on closedexams, and had lowe

these results, open-b

Keywords: test anxi

Test Anxiety and Performance on Open Book and Cheat Sheet Exams in Introductory Psychology

Afshin Gharib+ and William Phillips

Dominican University of California, San Rafael, CA 94901

Abstract. The differences between cheat sheet and open book exams were examined in introductory psychology classes. A total of 222 students enrolled in 5 sections of Introduction to Psychology participated in this study. Exam types were counterbalanced across sections. Students were given either cheat sheet or open book exams, and completed a pretest measure of test anxiety and study time. While students did slightly better on open book exams than on cheat sheet exams, exam scores were positively correlated, and students had lower levels of anxiety when taking open book exams compared to cheat sheet exams. Students also reported studying less for open book exams. The decision of what exam type to use depends on a trade-

British Journal of Educational Technology doi:10.1111/j.1467-8535.2008.00929.x

Vol 40 No 2 2009 227-236

The efficacy of final examinations: A comparative study of closed-book, invigilated exams and open-book,

### Jeremy B. Williams and Amy Wong

Jeremy B. Williams is Chief Academic Officer at Knowledge Universe Education in Singapore and an perenty B. Williams is Onej Academic Opiner at Knowledge Universe Education in Singapore und un adjunct professor in the School of Economics and Finance at Queensland University of Technology. adjunct projessor in the School of Economics and Finance at Queensland University of Technology.

Australia. Amy Wong is an assistant professor and Associate Dean of Faculty Affairs. U21Global.

Singapore. Address for correspondence: Professor Jeremy B. Williams, 15A Changi Bushess Purk

Central 1, #01-01 The Eightrium, Singapore 486035. Email: jeremywilliams@kueducation.com

Educators have long debated the usefulness (or otherwise) of final examinations: a debate that has typically revolved around the relative merits of closedbook exams, open-book exams, take-home exams or their substitution by some other assessment format (eg. project work). This paper adds a new dimension to the debate by considering how the final examination assessment instrument might be enhanced through harnessing the power of technology, more specifically, how the learner experience of the final examination might be made more authentic and, in the process, more constructively aligned with stated learning outcomes. The authors report on the latest findings of an ongoing research project evaluating the effectiveness of 'open-book. open-web' (OBOW) examinations delivered by an online university. vis-ā-vis a closed-book, invigilated alternative. Earlier research had indicated that the OBOW model receives the strong endorsement of students in a number of respects, most particularly the

their students? There is a relatively long history Increasingly, instructors are experimenting with native is to use a "cheat sheet" or crib sheet - a ing with them to use on the exam. Another otes and the textbook in an open book and open away from using closed book and note exams in ers felt that traditional exams were unnecessarily the students are not psychology majors. The d book exam to turn to.

ed. Some researchers have found higher grades lest than might be expected 3. In addition, open ong those students who need to study the most. than academically stronger students, and students exams 4. Many instructors in our department are ion that even students who do not prepare for the

ims are cheat sheet or crib sheet exams, where the es ahead of time to use on the exam. Some studies cheat-sheets 5, while others find no effect 6. One pen book exam, cheat sheet exams may encourage ry least students need to review the course material some instructors may worry that crib sheets become happen to have included on their sheet (usually the I spend less time on other material which none the

exams is that they may lower test anxiety. Test xperiencing negative emotions during the test - is moderate levels of anxiety may be motivating for

After very little change in the university sector for



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

ABSTR/

ABSTR/ currently i vehicle as universiti of Grou Group i unanno to all i first th Three the I

tween anxiety and test performance is probably non-

## 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

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
- b. Is there a difference in achievement on items which purport to measure
- 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 exam-

Frheblich 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, - Open-book-exams can take place both in the classroom and as take-home-
- Depending on the examination scenario, only certain (e.g. own notes or a
  - or unlimited aids can be admitted.

which are primarily used for performance asbe placed on retrieving knowled-

re demanding (rathwohl 2001) would accordingly ner "understanding",

The prospects of sitting 'end of year' open book exams in the light of

Christopher G. Jervis and Leo R. Brown @

MEDICAL TEACHER 2020, VOL. 42, NO. 7, 830-831 https://doi.org/10.1080/0142159X.2020.1766668

Edinburgh Medical School, University of Edinburgh, Edinburgh, United Kingdom

ABSTACT

Medical schools in the UK have been forced to dramatically restructure teaching and assessment models schools in the UK have been forced to dramatically restructure teaching and assessment sion through open book examinations (OBE), aim to share my thoughts as an unsettled 4th year stances cannot be underestant on my first set of the my thoughts as an unsettled 4th year stances cannot be underestimated. Working from home, during social distances around the underestimated. Working from home, during social distances surrounds structured on the strain of the strain stances cannot be underestimated, working from nome, during social distancing, surrounds sudents with the extra family stresses that we are all facing during this pandemic. This combined oents with the extra taminy stresses that we are all facing during this pandemic. This combined with a new, unfamiliar examination format will inevitably lead to students feeling daunted. While with a new, unfamiliar examination format was mentatry lead to students reeling gaunted, write some would argue that an OBE may reward good problem solvers, students still require a strong Some would argue timit an one may reward good problem sowers, students still require a strong foundation of knowledge. The luxury of reference will not be afforded in all clinical settings thus because a secondary students able to concern the students of tournation or knowledge. The tuxury or reterence will not be another in all clinical settings thus feading to concerns regarding students skimming over essential learning points, Furthermore, we reading to concerns regarding students summing over essential learning points. Furthermore, we cannot ignore the increased opportunity for academic misconduct resulting from an open book innot space the increased opportunity for academic misconduct resulting from an open book ssessment format. Why are medical schools placing undue stress on students who could instead assessment number. Yerly are medical schools placing undue stress on students who focus their attention on living compassionately for others during this difficult time?

We are currently experiencing a global health, economic, social distancing measures. This work-family stress is simply and for many students, educational crisis. Medical schools not conducive to a productive work environment. classes, and restructure curriculums to ensure adequate learning process required to achieve high marks in open

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

Firstly, we must address the issue of preparing for the Firstly, we must address the issue or preparing ror the exams amongst this unfolding crisis. Many students, like anxiety amongst students such as myself. Without ever takexams amongst this unrotating crois. Imany advantage anxiety amongst students about anxiety amongst students about one a formative OBE. negative of to focus on academic work. Inevitably isol

medical cover on the frontline during the Coronavirus book exams? As part of good exam technique, students (COVID-19) pandemic. In addition to the immense difficulwill be inclined to focus their studying on areas with the tles faced by medical schools, one must not overlook the perceived highest yield for marks. As such, in an open considerable strain on those academic staff who combine book setting, they may choose to dismiss key recall facts teaching responsibilities with NHS roles in what is an such as drug side effects or interactions, knowing this infor-UK medical schools have focused on delivering remote digital device. I acknowledge that in most situations in mation would be available to them in a few clicks of a teaching in an attempt to fulfill the General Medical medical practice, doctors are able to reference the British National Formulary (BNF) or other clinical guidelines. Difficulties arise, however, in emergency situations where 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 practic-

The lack of OBE experience for both students sitting the exams and examiners constructing the papers may provoke

emonstrate certain ormats. Examples are show that they are able ntexts or to acquire and ally question the acquiences. Depending on the nd encourage the developinitiative. It also meets have the opportunity to examinations. This wish nent in discussions with stuity-wide project on the topic ninations 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

Florida Hospital College of Health Sciences Jinyuan Tao Zhigang Li University of Central Florida

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

Jinyuan (David) Tao is the Assistant Director for Center for Educational Technology at the Florida Hospital College of Health Sciences. Zhigang Li received a PhD degree from University of Central Florida. Jinyuan Tao can be reached at david.tao@fhchs.edu.



Q Search for questions, people, and topics

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, <u>Reuters reported</u> 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.





### Ethics of take home tests

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



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)



Posted by u/MrZer 1 year ago =



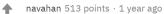
### Do profs know that students cheat on take-home exams?

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.



98% Upvoted

SORT BY BEST -



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
- Technische Maßnahmen ("Hacking")

Session 6A: Academic Integrity

ITiCSE '17, July 3-5, 2017, Bologna, Italy

### Plagiarism in Take-home Exams: Help-seeking, Collaboration, and Systematic Cheating

Arto Hellas University of Helsinki Department of Computer Science Helsinki, Finland arto.hellas@cs.helsinki.fi

Juho Leinonen University of Helsinki Department of Computer Science Helsinki, Finland education. As a downside of this online learning movement, acajuho.leinonen@helsinki.fi demic dishonesty such as plagiarism has become easier and even

more common [11].

Petri Ihantola Tampere University of Technology Department of Pervasive Computing Tampere, Finland petri.ihantola@tut.fi

Merriam-Webster online dictionary defines plagiarism as an

act of copying the ideas or words of another person without giving

credit to that person [15]. This is a significant problem especially in

computing education [5, 6], where students actually see copying

and stu

and s indic

Due to the increased enrollments in Computer Science education programs, institutions have sought ways to automate and stream line parts of crusse assessment in order to be able to invest more

wism behavior in an intro-This artic ductory pro

DECISION SCIENCES JOURNAL OF INNOVATIVE EDUCATION exam was Decision Sciences Journal of Innovative Education who took recorded October 2017 students

© 2017 Decision Sciences Institute

and pasting source code somehow more acceptable than doing the same with natural language and essays [1]. of the wide impact and importance of the topic, source en studied for nearly three decades [12]. Laround tools for detecting pladents' attitudes to-

code segits provide ning assignsm detection. exams of an -home exams, wnloading the that the exam fits the student g level changes

ke-home exams? es be identified from

red method approach. sing JPlag1 and manuicious cases. Next, we where different motivavior emerged. Finally, we verified plagiarism cases wiors could be identified

s follows. Next, in Section 2, ource code plagiarism. This lata and context in Section 3. dology and the results, which tion 6 concludes the article and

son of multiple plagiarism detection tools

### EMPIRICAL RESEARCH

### A Conceptual Framework for Detecting Cheating in Online and Take-Home Exams

School of Business, Hampton University, East Queen Street, Hampton, VA 23668,

Denise V. Siegfeldt

Florida Institute of Technology, Nathan M. Bisk College of Business, Department of Extended Florida Institute of Technology, Nathan M. Bisk Cottege of Business, Department Studies, Hampton Roads Site, Fort Eastis, VA 23604, e-mail: dsiegfeldt@fit.edu

### ABSTRACT

Selecting the right methodology to use for detecting cheating in online exams requires selecting the right methodology to use for detecting eneating in online exams requires considerable time and effort due to a wide variety of scholarly publications on academic dishonesty in online education. This article offers a cheating detection framework that can serve as a guideline for conducting cheating studies. The necessary theories and related statistical models are arranged into three phases/sections within the framework to allow cheating studies to be completed in a sufficiently quick and precise manner. This cheating detection framework includes commonly used models in each phase and addresses the collection and analysis of the needed data. The model's level of complexity ascends progressively from a graphical representation of data and descriptive prexity ascends progressively from a graphical representation or unit and observative statistical models to more advanced inferential statistics, correlation analysis, regressions. sausucar modes to more advanced inferential sausucs, correlation analysis, regression analysis, and the optional comparison method and the Goldfeld-Quandt Test for soon analysis, and the optional comparison method and the Condient Quantities for heteroskedasticity. An instructor receiving positive results on the possibility of cheating in Phases 1 or 2 can avoid using more advanced models in Phase 3. Tests conducted on sample courses showed that models in Phases 1 and 2 of the proposed framework on sample courses showed that models in runses 1 and 2 of the proposed framework provided results effectively for over 70% of the test groups, saving users further time and effort. High-tech systems and low-cost recommendations that can mitigate cheating are errort. Ingrateen systems and row-cost recommendations that can imagate creating are discussed. This framework will be beneficial in guiding instructors who are converting from the traditionally proctored in-class exam to a take-home or online exam without authentication or proctoring. In addition, it can serve as a powerful deterrent that will auricinication of procornig. In addition, it can serve as a powerful occurrent time and alleviate the concerns that an institution's stakeholders might have about the reliability

Subject Areas: Cheating Detaction P.

"there is still a lot of research missing concerning takehome exams in higher education and some of this research may be urgent"

Bengtsson, 2019





### Take-Home Exams in Higher Education: A Systematic Review

Physics Department, University of Gothenburg, SE-405 30 Gothenburg, Sweden; lars.bengtsson@physics.gu.se Lars Bengtsson Received: 19 September 2019; Accepted: 1 November 2019; Published: 6 November 2019



Abstract: This work describes a systematic review of the research on take-home exams in tertiary education. It was found that there is some disagreement in the community about the virtues of take-home exams but also a lot of agreement. It is concluded that take-home exams may be the preferred choice of assessment method on the higher taxonomy levels because they promote higher-order thinking skills and allow time for reflection. They are also more consonant with constructive alignment theories and turn the assessment into a learning activity. Due to the obvious risk of unethical student behavior, take-home exams are not recommended on the lowest taxonomy level. It is concluded that there is still a lot of research missing concerning take-home exams in higher education and some of this research may be urgent due to the emergence of massive online open courses (MOOCs) and online universities where non-proctored exams prevail.

Keywords: take-home exam; in-class exam; higher-order cognitive skills; unethical student behavior

Assessment is a necessary part of academic studies on all levels. With few exceptions, an in-class, closed-book, invigilated pen-and-paper exam is the traditional assessment method [1]. There are certainly other assessment methods in use, but the main assessment method at prominent universities is still a proctored, in-class exam (ICE). ICEs are typically characterized by hard time limits (2–6 h) and the stress this imposes on the students. The main reason for advocating ICEs seems to be that it minimizes the risks of the exam being compromised by unethical student behavior [1,2], but it has been criticized for several reasons: it deludes students to superficial learning [1], it does not promote students' 'generic skills' [3], it imposes an unnatural pressure on the students that has an adverse impact on their performance [4], it is not consonant with the prevailing theory of 'constructive alignment' in higher education [1,5,6] and it is not suitable for assessing students' performance on the higher levels of Bloom's taxonomy scale [7–9]. Bloom's taxonomy scale [9] is a hierarchical description of students' learning (revised by Anderson et al. in 2001 [7]). This taxonomy comprises all learning domains (cognitive, affective and sensory), but in this context (as in most higher education contexts) we are only considering the cognitive domain. At the lowest level, students' learning is characterized by root learning ('remember'). The succeeding levels are 'understanding', 'applying', 'analyzing', 'evaluating' and 'creating'; students move from root learners to true scholars where they create knew knowledge. The idea of Bloom's taxonomy is that it describes what phases learning undergoes and as teachers, it is paramount to understand on what level the present students are since this has direct consequences for the curriculum (objectives and activities), but, most of all, it has direct consequences for the design of the exam. An in-class, multiple-choice test (MCQ) may be justified on the lowest levels, but may not be appropriate on the highest levels; the higher levels require that students can define problems, predict, hypothesize, experiment, analyze, conclude and are capable of reflective thinking [10] and they also indicate an "intrinsic creativity or an ability to express ideas in their own



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.

his 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 Process-oriented work demonstrates the

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 Portflios 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.

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Teachers continuously assess their students' progress in the course of day-to-day instruction. This internal 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 interaction 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.

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 includ ed, they begin to reflect on their own learning and on ways to improve it. Pertfolios contrast 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, portfolios show students and their teachers concrete evidence of the progress made toward preestablished goals and

vield more information about what and how stuassessment. 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 proces is the foundation of a standards-based educational system. Portfolios are a permanent record of students' understanding and accomplishments at vari

Edited by Linda Wilson

Harold Asturias is affiliated with the New Standards Project, Oakland, CA 94617. He is interested in the development of assessment systems that are classroom based and show evidence of the breadth, depth, and quality of students' work. Linda Wilson teaches at the University of Delaware. She is interested in assessment issues in the room and is assistant project director of

THE MATHEMATICS TEACHER

### 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 milk crates, garbage bags, and bulging brief cases. Across the back wall are the typical accouterments 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, pen-cils, 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 argue 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 teachers opportunities to become decision makers about curriculum, to develop various instructional repertoires, to cre 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

teacher education portfolio. We present reasons why portfolios might be useful for assessment in teacher education programs, delineate characteris tics of an educational portfolio, and describe how one might design and develop portfolios. We

conclude by describing how portfolios have worked in our respective programs, one a graduate program for teachers of literacy and the other an undergradu ate program for prospective science teachers

### Why Use Portfolios in Teache

We can best articulate the reasons for the use of portfolios in teacher education by contrasting it with the comprehensive exam, another method commonly used to evaluate the success of graduate tudents in a program. Students traditionally take the comprehensive exam during their final semester responses to essay questions submitted by various lty members. Student responses are graded pass/ fail, and there is usually some mechanism for students to retake the exam at a later date if their initial attempt ends in failure.

Any new approach to evaluating prospective graduates of a teacher education program should take into account the kinds of experience they encounter and the professional duties they will be called upon to perform in the schools. The evaluation process must also consider such limitations as the potential resources (i.e., time constraints, use of facilities, funding, personnel) available for that student evaluation. One advantage of its minimal impact on the above resources. A relatively brief block of time is set aside each semester for the exams, existing facilities can easily be utilized for its administration, and education faculty have over the years developed a file of contribute to the exam. Despite the ease of admin istration (perhaps because of it), some questions must be asked: What specifics can be learned about

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### The Use of Student Portfolios in Engineering Instruction

ANN D. CHRISTY Department of Food, Agricultural, and Biological Engineering The Ohio State University

MARYRETH LIMA Department of Biological and Agricultural Engineering Louisiana State University

### ABSTRACT

Student portfolios are listed as a possible means of assessment ander the basic level accreditation criteria for ABET "Engineering Criteria 2000." Efforts to initiate student portfolios in envincering ion 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 seniors taking 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 seniors and 80% of freshmen believed that the use of student portfolio 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 87% of the intuitive types found them useful. In this paper, the methodologies for sing portfolios are detailed, the results of applying the portfolio method are presented, and implications and re

### I INTRODUCTION

The Accreditation Board of Engineering and Technology The Accreditation Board of Engineering and Lechnology
(ABET) recently published Engineering fortina 2000, which sets new standards for evaluating and accrediting engineering porgames in the United States: The critica are purposefully oneprescriptive in nature to encourage innovation in engineering onlyunit. The topics for this course include enzyme kinetics, simulatime.

balders." Engineering Criteria 2000 cited the student portfolio as a po-sible means for meeting criterion three; program outcomes and assessment. Shackelford defined the student portfolio as a po-posefid collection of materials capable of communicating student

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."

While student portfolios have long been used to document student learning and mastery in subjects such as art, journalism, and architecture, their use in engineering education has been a rela-tively recent phenomenon, with little supporting literature. \*\*\* Panitz' briefly described the use of student portfolios in technical ourses at five universities. Olds' illustrated the use of studen portfolios in assessing engineering students' writing skills. Cress and McCullough-Cress" discussed portfolios in engineering courses as a means of reflective assessment. Johnson<sup>10</sup> used the student portfolio in conjunction with a professional development

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 recom mendations for future work. This paper documents the first year

### II. METHODS

cation. Proceedings from the National Conference on Outcomes
tion of animal, plant, and microbial growth; and the analysis and
Assessment for Engineering Education reflect educators finstradesign of engineered systems that include biological components
too with this size. The process for implementing new means of
an opposess. Design examples and assignments were drawn assessment will be iterative in nature, and will involve collabora-tion among educators, industry leaders, accreditors, and stake-divided into six categories: homework, laboratory reports, examinations, individual student presentations of biological engineering

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### **Electronic Portfolios** in Physical Education

computers, video technology, multimedia project development, and electronic portfolios. in the previous articles, we explored using computers that can assist teachers with data collection on the field (Technology in Physical Education), the use of video technology in the learning process (Using Video Technology i Physical Education), and the creation of multime dia projects by students as an assessment tool (Multimedia Projects). In this fourth article, we will examine electronic portfolios as an assessnent tool that documents student learning in

opposed to what they can't do. The time has ome for students in physical education to do the same. Portfolios, as explained by the Na-tional Association for Sport and Physical Educa-tional Association for Sport and Physical Educa-tion (NASPE, 1995), 'include various pieces of evidence documenting student achievement of a goal' (NASPE, p. 117). For example, in a fitness unit, this may include the creation of a 1-week litness plan that the student implements and are placed in the portfolio to document growth.

### USING ELECTRONIC PORTFOLIOS

Electronic portfolios help with the collection, organization, and storage of information by incorporating digital pictures, digitized video,

tions that accompany the software and then spend a few hours familiarizing themselves with the software. Once teachers have learned the time in collecting, storing, and revisiting studen

Electronic portfolios can be stored on a floppy disk (1.4 mg), a Zip disk (100 mg), or a CD-Recordable (650 mg) depending on the hard-ware available to the students. There are several e used by teachers in mathematics, science language arts, and history/social science. They include: (1) Grady Profile (Software for Teach-es) and (2) Scholastic Electronic Portfolio Macintosh. Finally, students in physical educa-

information and paste in pictures. For the visua field of physical education, these portfolios are

### Portfolio assessment in medical students' final examinations

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education at Dundee Medical School in Scotland instigated a tearch 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 defined and the first cohort of students to be assessed in this way has been studied. The evulva-ation 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 toorthy of inclusion in the assessor's

JOURNAL OF

LANGUAGE

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Using portfolios to assess the writing of

ESL students: a powerful alternative?

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This article describes a quantitative study that compared the performance of two group

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

with socies one town passing of the Co-Y ming assistant ast (AY). 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 or

the WAT, while students in the non-portfolio group moved ahead only if they had passed the

WAT. (The WAT remained 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

Portfolio assessment of writing, which incorporates several diverse writing

samples produced at different times, has often seemed ideally suited to program

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

ordered thinking, the psychology of students in the economics classroom, and the

development of new tests as public goods. The author suggests ways that eco-

nomics faculty can add new dimensions to their assessment practices, improve

their understanding of assessment choices, use assessment to enhance the quali-

ty of student thinking, and conduct research studies on assessment questions.

Key words: active learning, assessment, economics courses, research, testing

Assessment is an integral part of faculty teaching and student learning in uni-

versity 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 assign-

ments. Assessment is thus a multi-dimensional activity and information resource

for economics teachers and students, a theme that will be emphasized through-

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 when teaching a course. Other issues, such as student

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Keywords: Portfolio assessment; ESL students: CUNY WAT

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William B. Walstad

Improving Assessment

in University Economics

Assessment of student performance in the final examina-Assessment of subcent performance in the time examina-tion 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 examinadisciplines. Unstructured clinical and wave voce examina-tions and the use of essays have been criticized in the past (Stokes, 1974; Newble, 1992) and to address these criti-cisms approaches such as the objective structured clinical examination (OSCE) (Harden & Gleeson, 1979) were introduced to assess clinical competence.

introduced to assess clinical competence.

Assessment, however, has not kept pace with curriculum change (Harden, 1996) and insufficient research has been carried out into assessment. The General Medical Council (GMC, 1993) in Tomorous's Dectors, 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

The problem has been put into sharp focus by an increasing emphasis on outcome-based education (Harden, Crosby & Davis, 1999), where the various competences 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

learning has taken place. The use of portfolios for assess ment has been described and attention has been drawn to their potential in medicine (Snadden & Thomas, 1998; Challis, 1999). This paper describes a new approach to the final examination based on portfolios, which has beer piloted in Dundee Medical School.

### The Dundee Curriculum

The Dundee undergraduate medical programme is a five-year course with an integrated, systems-based, spiral curriculum based on the core and special study module (SSM) model (Harden et al., 1997). For the one year of this study, 11 learning outcomes had been identified Harden, et al., 1999) and are shown in Appendix 1 Students progress towards these outcomes in the three phases of the curriculum.

In phase 1 (year 1), the emphasis is on normal structure,

function and behaviour and in phase 2 (years 2 and 3), or abnormal structure, function and behaviour. In phase 3 (years 4 and 5), a task-based learning approach has beer adopted (Harden et al., 2000). Students build on their prior learning and apply it to approximately 100 core clinica problems that they meet in hospital wards and outpatien

departments and in general practice attachments.

Twenty-one curriculum themes run throughout all three phases of the undergraduate course. These include traditional disciplines or specialities such as anatomy, patholog and clinical pharmacology and topics that the GMC (1993) identified so of particular importance; for example, health promotion and disease prevention, clinical skills and disability and rehabilitation. Each theme has a theme convenor or advocate who ensures appropriate representa

tion for his/her theme throughout the curriculum.

In year 4, students rotate through 10, four-week block attachments: general medicine, general medicine with neurology, dermatology/ageing and health, general prac-tice, child health, otolaryngology/ophthalmology/urology, general surgery, musculoskeletal medicine and surgery/ emergency care, psychiatry, obstetrics and gynaecology.

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### COMPETENCES IN PHYSICAL CHEMISTRY

LEARNING PORTFOLIO AS A TOOL FOR ASSESSING D. Monllor-Satoca, I. Barceló, P. Bonete, T. Lana-Villarreal, R. Gómez

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### Abstract

Physical Chemistry is a classic discipline in Chemistry, Chemical Engineering and Pharmacy curricula; Priyacia Chemistry is a classic uscipline in Chemistry, Chemica Engineering and manimarity controlled, 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 systless in the BSc (Grade) in Chemistry. In addition it has led to an update and a redistribution of its contents in more basic and condensed subjects that deal with fundamental aspects, leaving all specific and more novel (advanced) contents for Master and Doctorate studies. This new redistribution should have a set of (advanced) Contents for master and bounded supports. This time (constitution of the content of the content of the content of the content of the continuous evaluation. In this work, a new evaluation model is presented based on the use of the learning portfolio as working too; each student is continuously assessed not only from a grading erspective but also from a formative point of view, i.e. with an explicit indication of the level achieved

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

Among all classical Chemistry areas, Physical Chemistry has a rather multidisciplinary nature [1], ranging from the macroscopic study of natural phenomena (thermodynamics and chemical knetics) to the properties of marter in the microscopic realm (qualitm chemistry and spectroscopic, as well as the principles that relate both (statistical thermodynamics). Moreover, the present structure of university studies implies a new teaching-learning model that is more focused in structure of university studies implies a new teaching-learning model that is more focused not knowledge mobilization (know-what and know-how) in different changing ton tensions, and the composition of the studies of the knowledge and the composition of the studies of the knowledge and the knowledge and the studies of evaluates competences in a more genuine way must be implemented [3], in accordance with presen

The multifaceted Physical Chemistry syllabus can lead some teachers to provide their students with a fragmented and diluted corpus of concepts and skills. Therefore, it is of utmost importance to carefully examine the meaning of Physical Chemistry itself in the BSc in Chemistry as it is conceptually intertwined with other areas, such as chemical bonding study in Inorganic Chemistry, solution equilibria in Analytical Chemistry, or spectroscopy in Organic Chemistry. This analysis should lead to organization in Nating Sac Continuings, or specific processing in 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 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 according to their topics and demanding level, splitting them from more specialized and modern topics that appear either as

Regardless of the ongoing efforts, the new curricula structure does not warrant any significant regulations or the original entities, the new culticular structure does not warrant any symitatic improvement on what students learn; a new assessment system is required that, within the European Higher Education Area (EHEA) framework, guarantees the competence acquisition, life-long learning and a more appropriate employment procedure in line with an ever changing society (6). With these assumptions, the Spanish National Institute for Qualification (INCUAL) revised 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 [...]". In the framework of the Spanish 5/2002 bylaw, a professional qualification is conceived as "a set of

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 Eco-nomic Education, University of Nebruska-Lincoln (e-mail: wwalstad l@mal.edus. Helpful comments were provided by Sam Allgood, William Becker, Carol Johnston, Peter Kennedy, Ian McDonald, Ken Rebock, Michael Salemi, and Michael Watts.

Traditionell werden Portfolios ergänzend zu summativen Abschlussprüfungen eingesetzt.

Dort ermöglichen sie eine formative Steuerung des Kompetenzerwerbs.

Eignung vor allem auf höheren Kompetenzeben



devise more appropriate ways of assessing it and more effective ways of educating it. Howard Gardner

### Introduction ar

There has been due to a major e report in 1999 an generally called th of the reform is a systems regarding learning environme closer fit between te students. Since por proposition as one e are underway or pla professional educatio The project reporte

Introduction

Since the late 1980's, public education in North America has been shifting to a standards or outcomes based and performance oriented systems. Within such systems, the most basic purpose of all education is student learning, and the primary purpose of all assessment is to support that learning in some fashion. The assessment reform that began in the 1980's in North America has had numerous impacts. Most significantly, it has changed the way educators think about students' capabilities, the nature of learning, the nature of quality in learning, as well as what can serve as evidence of learning in terms of classroom assessment, teacher assessment and large-scale assessment. In this context, the use of portfolios as a mode of assessment has gained a lot of interest. This chapter will explore the role of assessment in learning and the role portfolios might involves three Norwe play. Research evidence of the qualities of portfolios for enhancing student learning is presented and discussed.

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

Portfolios verbessern die spätere Prüfungsleistung oft nur wenig.

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## The relationship between students' perceptions of portfolio assessment

Mien Segers<sup>a</sup>\*, David Gijbels<sup>b</sup> and Marieke Thurlings<sup>c</sup>

<sup>a</sup>Department of Educational Sciences, University of Leiden, The Netherlands; <sup>b</sup>University of Antwerp.

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 CB was used to measure their approach-

### **Effectiveness and Management** of Portfolio Assessment in High-Enrollment Courses

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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.

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 multiplechoice tests often used for undergraduate courses aimed at non-science majors. These portfolio-style assessment strategies transfer the responsibility for 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 multipleoice tests have already been described, documented,

Previously in this journal, the authors described a strategy for using and grading undergraduate studentassessment 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

44th AIAA Aerospace Sciences Meeting and Exhibit 9 - 12 January 2006, Reno, Nevada

AIAA 2006-288

### Eliminate Final Exams in Intro to Flight Through The Use of Portfolios?

Aaron Altman University of Dayton, Dayton, Ohio, 45469-0238\*

A portfolio can be an extremely powerful experienced by a student through level of reflective to

Medical Teacher, Vol. 23, No. 4, 2001



rmine the degree of learning ce the student into a higher possible for the student by xam. Portfolios have been and other professions for eory for using Portfolios in ill be briefly introduced in within engineering. Even application of portfolios d across the engineering and specifically address iven to Sophomore year was solicited from the communication and ears immediately and r's expectations. This portfolios. By the time remely positive about itted made clear to mprehension of the through the use of

## Portfolio assessment in medical students' final

### examinations M.H. DAVIS, M. FRIEDMAN BEN-DAVID, R.M. HARDEN, P. HOWIE J. KER, C.

MCGHEE, M.J. PIPPARD & D. SNADDEN Ninewells Hospital and Medical School, Dundee DD1 9SY, Scotland

SUMMARY The introduction of an outcome-based approach to education at Dundee Medical School in Scotlane search for assessment methods that would approthe students' achievements in terms of the learn Portfolio assessment has been developed for this p final examination in Dundee. The contents of the assessment process have been defined and students to be assessed in this way has been sti ation of the approach demonstrated stro-Students were also positive although with so is concluded that portfolio assessment is a po assessing a range of curriculum outcomes ne

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The problem has been increasing emphasis on out Crosby & Davis, 1999), w. are needed to make a go tested, are specified. It is a methods that will assess reached the required sta at the end of their under Portfolios offer a po

collection of papers and other forms of evidence that learning has taken place. The use of portfolios for assesshas been described and attention has been drawn to medicine (Snadden & Thomas, 1998; a new approach to the

Chang, C.-C., & Wu, B.-H. (2012). Is Teacher Assessment Reliable or Valid for High School Students under a Web-based Portfolio Environment? Educational Technology & Society, 15 (4), 265–278. Is Teacher Assessment Reliable or Valid for High School Students under a Web-based Portfolio Environment?

Department of Technology Application and Human Resource Development, National Taiwan Normal University, Chi-Cheng Chang 1st and Bing-Hong Wu2 Taiwan // <sup>2</sup>Department of Data Processing, Taipei Municipal Sung-Shan Senior High School, Taiwan // samchang@ntnu.edu.tw // binghong.wu@gmail.com \*Corresponding author

This study explored the reliability and validity of teacher assessment under a Web-based portfolio assessment rins study explored the remaining and various or reacher assessment under a recommendation of Web-based teacher portfolio assessment). Participants were 72 eleventh graders taking the "Computer Application" course. The students perform portfolio creation, inspection, self- and peer-assessment using the Web-based portfolio assessment system; meanwhile, the teachers used the assessment tool to review students' portfolios and evaluate their learning performances. The results indicated that: 1) the Web-based portfolio teacher assessment achieved an acceptable level of reliability; 2) the Web-based portfolio teacher assessment, showing a strong level of inter-rater reliability and inner-rater reliability, can be regarded as a reliable assessment method; 3) the Web-based portfolio teacher assessment demonstrated an acceptable level of validity; 4) the portfolio scores were highly consistent with students' end-of-course examination scores, vanishing, 7) the portion scores were many consistent with students encorporate examination scores implying that Web-based portfolio teacher assessment is a valid assessment method. Future studies are recommended to gain further insight into the self-built portfolios created by digital tools (e.g. PowerPoint, Word, or Frontpage software), for which effective rubries and reliability or validity of the assessment may be

Web portfolio, e-Portfolio, Portfolio assessment, Reliability, Validity

Despite large time commitment required from both faculty and students, learning portfolios not only have positive influences on the quality as well as process of learning, but also offers a number of benefits not available as using conventional assessment approaches (Zalatan, 2001). Traditional paper-based portfolios are relatively ineffective in terms of inquiry, update, storage and management with particular difficulties in documenting various types of information, e.g. audio and video. Nevertheless, Chang and Tseng (2009a) stated this issue related to information storage can be settled by digital portfolios when technical support is available, such as floppy disk, hard disk, and CD-ROM. If not, Internet technologies may come into play. The Internet has marked

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 durchwachsen
- Bei Take-Home Prüfungen sind Vorsicht und Kontrolle unbedingt geboten.

