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Attitude of higher education learners toward online examination[75]

اتجاهات متعلمي التعليم العالي نحو الاختبار الإلكتروني

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Abstract

The study aimed to enrich the national online learning context and settle the skeptical arguments regarding the student's attitude toward online examination and misconduct among them. A cross-sectional approach is used, and an online survey distributed over the sample of the study consists of 762 higher education learners in Saudi universities. The results of the study showed those positive students' attitudes toward online examination, reveals no significant differences exist on the dependent variables between the different genders and degrees, and significant differences were evident on the dependent variables related to study year and college.

Keywords: Online Examination, Saudi Arabia, learners of higher education, learners' attitude.

الملخص

هدفت الدراسة لإثراء السياق المحلي للتعليم الإلكتروني وتسوية الجدال حول توجهات الطلبة نحو الاختبار الإلكتروني. استخدمت الدراسة منهج الدراسة المقطعية وتوزعت الاستبانة بصورتها الإلكترونية على طلبة التعليم العالي والبالغ عددهم 762 طالب وطالبة في الجامعات السعودية. أظهرت نتائج الدراسة أن للطلبة توجهات إيجابية نحو الاختبار الإلكتروني ولم يكن هنالك فروق في توجهاتهم تُعزى للمتغيرات المستقلة (الجنس والدرجة العلمية) وكانت هنالك فروق في توجهاتهم تُعزى لمتغير السنة والكلية.

الكلمات المفتاحية: الاختبار الإلكتروني، المملكة العربية السعودية، طلبة التعليم الجامعي، توجهات الطلبة.

Introduction

Despite that Saudi universities offered online learning platforms, the first real full online learning was initiated during the obligated unplanned shift toward online learning imputed to emerged on-going Coronavirus (CoVID-19) at the beginning of December 2019 (Khalil, et al., 2020). Accord-ingly, the increasing dependence on online learning in higher education forces increased using of online examination, which emphasizes the request of aligning assessment methods and forms accords to the unplanned shift of E-learning experiences to avert cognitive discrepancy (James, 2016). Thus, the new online examinations have to go beyond the conventional formats and structure; for example, multiple-choice test, short answers, and fill in blanks question, which cannot actually assess students' skills and cognitive capacity, and encourages new online examination norms such as in-video examination, online presentation, simulations (Ragupathi, 2020), Webcam-based examination (Hylton, Levy, & Dringus, 2016), open-book examination, and open-web ex-amination (Myyry & Joutsenvirta, 2015). Another raised merits, Myyry & Joutsenvirta (2015) de-noted that there are differences among online examination experiences impute to individual differences, such as self-efficacy, beliefs, and attitudes. Furthermore, previous studies concern students' performance discussed students' misconduct and debated the differences in students' performance imputed to the online exam proctorship, discussing time-consuming during exam and performance, found that time-consuming is two likelihoods in nonproctored examination compared to the proctored exam,

[75] El título debe ser corto, claro, impactante y mostrar la esencia del trabajo en máximo 20 palabras. Sugerimos que el título incluya palabras que permitan a los lectores encontrarlo fácilmente. / The title must be short, clear, powerful and show the essence of the work in a maximum of 20 words. We suggest that the title include words that allow readers to find it easily.

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better performance within non-proctored examination compared to proctored examination (Daffin & Jones, 2018). While a comparative study found that students' performance was at the same level without any significant differences between in-class examination and online examination, even more, the study found that students have a lower pressure level within online exam compared to the in-class exam, a higher sense of control, and an opportunity to re-take an exam several times, which enable students to get back and research and continuously reread related knowledge, but they claim that exam does not involve actual thinking (Greenberg, et al., 2008).

Accordingly, in this paper, we attempt to enrich the national online learning context and settle the skeptical arguments regarding the student's attitude toward online examination and misconduct among them.

Literature Review

There is a dearth of literature that reports the effectiveness of using online examination from both academic instructors' and pupils' perceptions, namely, preferences, weakness, strengths, benefits, and challenges (see Inuwa et al., 2011; Sheridan et al., 2014; James, 2016; Bahar & Asil, 2018; Peytcheva-Forsyth et al., 2018; Shraim, 2019; Ilgaz & Adanır, 2020).

The studies have conflicting outcomes of assessing perceptions and favoring online examination, vary between favoring positively and aversion. Bahar and Asil (2018) presented the positive attitude results toward online examination. These attitudes were exhibited by Turkish university graduate and postgraduate students who experienced both direct education, online programs, and online examinations. Jeljeli et al., (2018) manifested that students prefer online rather than paper examination in a comparison study involved 274 graduate and undergraduate participants in Emir-ates. Peytcheva-Forsyth et al., (2018) reported, likewise, that students have a positive attitude toward online learning activities. Similar to a survey of medicine and healthcare students conducted by Inuwa et al., (2011), 44.5% of students exhibited a positive attitude and preference for online examination attributed to the high quality of specimens that used for learning rather than cadavers, which is considered to lack in quantity and quality, for anatomy purpose. Interestingly, results revealed in the trial application of invigilated online examination in Australia, most of the students changed their initial perceptions toward online examination. A 93.7% of students reported negatively skewed perception toward online examination and refused to continue in the online examination trial due to technical difficulties and lack of support during the exam (James, 2016). As much as students have a negative perception toward online examination, students were claiming that online examination eliminates face-to-face communications and declines peer relationships. Students declared that face-to-face meetings before examination allow them to share information and exchange knowledge with their peers to ensure their learning correct their acquired misconception (Sheridan, Kotevski, & Dean, 2014).

One of the most repetitive reported advantages of the intact online learning platform is the flexibility and the easy-to-do features. Students share a consensus that doing an examination off-campus is easier than attending university for examination, in the context of reducing time and effort. For example, some students comply drive or spend more than an hour attending university. Instead of wasting an hour on roads, students gain an extra hour to focus on their learning, not to mention the physical burden (Sheridan, Kotevski, & Dean, 2014). Medical students are claiming that through online examinations, they can manage their examination time efficiently. For example, they can distribute examination time over questions according to their own demands rather than giving an equivalent period for each question. Students can invest more time on the hard questions and conserve time on the easiest ones. They also mentioned that performing practical examination in the laboratory requires students to frequently moving during the examination process, while through online examination, they stabilized in one place all over the test (Inuwa, et al., 2011).

Furthermore, online examination drives more private and personal settings, which reduces, in turn, the peer pressure level imputed to the distraction inattentive and gain more time in an examination scenario. Students claimed that online examination is amenable to full self-control; since a student has the independent willingness to manage their responses and submitting answers (Sheridan, Kotevski, & Dean, 2014). Bettinger et al. (2014) reported both sides of peer-pressure and reflection on the students' performance in the online environments, first, it has a negative influence on students' performance and course completion, Second, evidence reported that online discussion room in online learning systems assists students

to enhance their performance (2014). Accordingly, this has implicated the message that peer pressure and influencing is persisting in online environments. Another aspect argued that online examination increases the cheating potentials with the increased private and personal settings, particularly if the examination process is not invigilated (James, 2016). For example, a survey study of chemistry courses addressed the online cheating potentials in both examination and task solutions. The instructors and teachers claimed that students frequently use others solutions or download just answers from internet resources, which they consider not cheating, but it is cheating according to educational standards, and they are cheating themselves out of their exam performance (Nguyen, et al., 2020).

Business school students also shared that cheating in online examinations compared to on-campus examinations is easier (King, et al., 2009). Accordingly, the validity and reliability of online examination remain ar-guable. (Öz & Özturan, 2018) addressed this quandary and found that students' achievement in two examination modes (i.e., online vs. paper) was equivalent and not significantly different. Ilgaz & Adanır (2020) argued that there is no difference in learners' achievement between paper examination and online examination as found by a quantitative analysis of academic achievement 163 students enrolled in diverse academic programs in a Turkish university. Students' score data, which is collected in the environmental science course over the period between 2009 to 2019, indicates that there are no differences in the students' performance between both online examination and face-to-face examination (Paul & Jefferson, 2019). Inconsistently, Sheridan, Kotevski, & Dean (2014) conveyed that online examination enhances students learning since they achieve more clarity and better assimilation of subject knowledge. A comparison between different examination modes and performance demonstrated that in the online examination, students increase their performance; due to the aid of technology in learning (Jeljeli, et al., 2018). They further illustrated that Learning Management Systems (LMS) based examination (such as Moodle) is the most effective tool to enhance student's performance compared to both social media-based examination and paper examination (Jeljeli, et al., 2018). Hakim (2017) found similar results, and the students have higher performance scores at online examinations than on the equivalent paper.

Online examination advances a feature of well-integration between workplace and learning continuity because the students can do their exam without the need to attend university and thus do not need to leave or take off from their work; especially to those working and completing an aca-demic degree (Sheridan, Kotevski, & Dean, 2014). Consistent with students' responses in James (2016), there is a high degree of agreement that online examination reduces transition time and cost, reduces the likelihood of being late at the exam, and decreases the take-off time from work. Peytcheva-Forsyth et al. (2018) established, however, that employed students have a higher positive attitude toward online learning since they share a greater need for online learning compared to their unemployed peers since online is a more flexible learning environment to employed students.

Another aspect of online learning is the anxiety and frustration associating with performing exams. There is uncertainty toward this issue since the studies, such as (Bahar & Asil, 2018; Peytcheva-Forsyth et al., 2018; Joshi, et al., 2020; Arora, et al., 2021), reported that online examination in-creased the anxiety level of students and it may add a new anxiety category, which does not occur in the in-campus examination, the anxiety associating with using computers and technology. Furthermore, Peytcheva-Forsyth et al. (2018) explained that technological barriers and lack of competencies increase the anxiety of learning online and reduce the motivation level for online learning. However, Arora et al. (2021) found that the online examination, particularly the unplanned shift toward this examination format due to global health condition, adds to anxiety level of examination and negatively affects thus students' self-efficacy. Joshi et al. (2020) emphasizes the increased level of anxiety in the online examination, especially in the home, due to family interruption during the test, control lack of external distraction, and the support lack during examination actions. Contrasting participants' expectation in James (2016), reporting online examination reduces anxiety levels.

Furthermore, instant feedback examination supports reflection on action involving self-evaluation personal and professional progression through the learning process. The student during the online examination can assess their own growth and increase their self-assurance, self-improvement, and self-awareness. Accordingly, the students' feelings of belonging and connectedness were raised (Sheridan, Kotevski, & Dean, 2014). Furthermore, Marchisio and her colleagues (2018) were interpreting the instant feedback of online examination makes students

aware of their progress toward their predefined goals and suggesting what they need to achieve better progress. In turn, students utilize, and process information acquired from feedback for the sake of self-level enhancement.

Male students showed higher positive attitudes compared to female students, according to the results of Bahar and Asil (2018). These differences were attributed to their higher usage of computers and higher technology experience compared to their female peers. Similar to James (2016), endorsed there is an association between gender and attributes toward online education at all, in which female students showed two-folds negative perception to examine online and clarifying they are more likely to ask teachers' help in the exam which male students did not. The male medicine and healthcare students also showed a high preference for online examination counterparts their female peers (Inuwa et al., 2011). In contrast, Jeljeli et al., (2018) found no difference in the prefer-ence toward the online examination tool due to gender, but the differences appear due to subject and time spent in the university.

Methodology

The study adopted the explanatory research method, utilizing a cross-sectional quantitative approach to investigate the attitude toward online examination and mentoring among Saudi university students, since they are experiencing online examination for the first time of their academic life, and it is mandatory due to consequences of Corona virus on education learning system and obligation shift toward online learning. The data will be collected using online survey distributed among university students, the survey will be developed using panel of previous research such as (Myyry & Joutsenvirta, 2015; James, 2016; Tarricone & Newhouse, 2016; Shraim, 2019). The instrument will be distributed over a randomly selected sample of Saudi university students that engaged online examination during the last shift toward E-leaning in higher education institutes.

Data analysis

This part presents the findings of the study that aims to enrich the national online learning context and settle the skeptical arguments regarding the student's attitude toward online examination and misconduct among them.

This part will explain the questionnaire outcomes obtained after collecting and analyzing the response, an analysis of the results of the respondents' answers to determine the attitude theirs toward online examination.

A cross-sectional survey was utilized to obtain results by distributing them to a sample of (762) participants. Thus, the statistical package for the social sciences (SPSS) was utilized to analyze the collected data in tabular and graphical form to perform an illustrative analysis. All information collected by the survey was treated confidentially since it was only used purely for academic research purposes.

Statistical treatment

The following statistical treatments through statistical software packages (SPSS) were used:

- Normality test
- The reliability (Cronbach's alpha).
- Frequencies and percent of the characteristics of the study sample.
- Means and standard deviation for study item.
- Pearson correlation.
- One-sample kolmogorov-smirnov test.
- Mann-Whitney and Wilcoxon test.
- Kruskal-Wallis test.

Normality

Normality test is one of the most tests required before going through the data analysis, in which the normality assumption for each variable must be checked. According to represents the results of Kolmogorov-Smirnov and Shapiro-Wilk tests, the significance value which is (p-value ≤ 0.05) the Kolmogorov-Smirnov and Shapiro-Wilk test thus significant value indicates that the data has deviated from the non-normal distribution significantly.

Reliability analysis

The extents of the reliability of data provided by the tool are one of the most important foundations of data collection in scientific research. Therefore, the researcher computes extents questionnaire reliability by calculation of internal consistency using Cronbach's Alpha values, the Cronbach's Alpha value reached (0.819) for the total alpha values of items. This indicates to accept reliability; this indicates to accept reliability. Othman (2001) mentioned in this research that the coefficient of reliability (Cronbach's Alpha) that can be adopted is from 0.65 to 0.85.

Validity analysis

To test the validity of the instrument, the Pearson correlation test was applied. The results for the variables are shown in table 1:

Table 1.
Correlation results for the items.

Items	Pearson correlation	Items	Pearson correlation
1	.294**	8	.680**
2	.750**	9	.797**
3	.805**	10	.702**
4	.798**	11	.809**
5	.758**	12	.787**
6	.415**	13	.441**
7	.775**	14	.135**

Correlation is significant at the 0.01 level (2-tailed). **

Table 1 shows that correlation coefficients of items ranged from (.135-.809), indicating a strong correlation coefficient, these values were appropriate for conducting this research study.

Descriptive analysis

Demographic profile of participants

The study tool was distributed among all Saudi university students. The percentage and frequency were computed for each demographic variable to explore the participant's profile. The total number of participants in this study was 762 participants, belonging to gender, year, degree, college.

Table 2.
The Demographic Profile of the Study participants.

Independent Variable	Category	Frequency	Percent %
Gender	male	212	27.8
	female	550	72.2
	Total	762	100
Degree	Diploma	59	7.7
	Bachelor	676	88.7
	Master	21	2.8
	PhD	6	.8
	Total	762	100
Year	First year	320	42.0
	Second-year	116	15.2
	Third-year	148	19.4
	Graduation year (fourth and more)	178	23.4
	Total	762	100
College	Literature College	521	68.4
	Science College	199	26.1
	Medical college	42	5.5
	Total	762	100

According to gender category, the high percentage of the participant was female with a total of 72.2% of participants, while the male participants represented only 27.8% of the study participants. Years of study, concerning the years of study in the university, responses recorded, and the percentage table computed indicates that the majority (42%) had the First year. Few responses (15.2%) were registered in the category of the Second year as shown in Table 3.

However, table no. (3) Reveals the scientific degree of participates were most of them a Bachelor degree representing 88.7% of the sample, while 7.7% of participants a diploma degree. As well only 2.8% of participants are holding Masters' degrees. College, the Percentage values of Table 3 indicate that the majority of the respondents were from Literature College (68.4%). Those in Science and Medical

College the least Percentage representing only 31.6%.

Results and Discussion

Means and standard deviation:

Means and standard deviation for "investigate the attitude toward online examination and mentoring among Saudi university students" items and total means of them, table 3 shows that. The descriptive analysis was computed for each component, as well as for each item within an individual component. Table 3 below, reveals the component's means and standard deviation. For the investigation, the attitude toward online examination and mentoring among Saudi university students is high level, in which the highest mean value is at 4.32, and the lowest mean is 2.45.

Table 3.
Means and standard deviation for "investigate the attitude toward online examination and mentoring" items and total means of them (n= 762)

No	items	Mean	Standard. Deviation	Rank	Agreement degree
	I think online examination results do not fully represent a student's true achievement.	2.45	1.345	14	Strongly disagree
	I would rather take the online examination than take the paper exam.	4.32	1.165	1	Strongly agree
	The online examination is an effective way to assess the amount of knowledge a student has.	3.98	1.200	7	Strongly agree
	The online examination is an effective way to assess a student's skills.	3.95	1.234	8	Strongly agree
	The online examination enables me to show better academic achievement.	4.07	1.128	5	Strongly agree
	An online exam makes me feel less nervous than a paper exam.	3.55	1.592	12	Strongly agree
	I focus more on the online examination.	4.12	1.178	2	Strongly agree
	The online exam does not facilitate cheating.	3.84	1.371	9	Strongly agree
	The online examination is a flexible, accurate, and reliable assessment method.	4.10	1.199	4	Strongly agree
	The online examination identifies problems and weaknesses experienced by students.	3.64	1.302	10	Strongly agree
	The online exam is suitable for assessing a student in any course.	4.04	1.155	6	Strongly agree
	The online examination improves a student's cognitive skills.	4.12	1.086	2	Strongly agree
	Taking the online examination requires less time than the paper-based examination.	3.57	1.460	11	Strongly agree
	I prefer to take a paper-based exam than take the online examination to assess my reading comprehension.	2.60	1.545	13	Strongly disagree
Total means		3.74	0.706		

Shown in table 3 that the arithmetic means of paragraphs "investigate the attitude toward online examination and mentoring" ranging from (2.45-4.32), and most notably the highest means reached (4.32) out of (5) for item (2)" I would rather take the online examination than take the paper exam ", and then for item (7) "I focus more on the online examination" (means 4.12). And the lowest means was (2.45) for items (1)" I think online examination results do not fully represent a student's true achievement ". The total mean for "the attitude toward online examination and mentoring among Saudi university students" reached mean (3.74) and standard deviation (0.706). This is consistent with the study by Jeljeli et al., (2018) that explored students prefer online rather than paper examination. Peytcheva-Forsyth et al., (2018) reported, likewise, that students have a positive attitude toward online learning activities. The results of the current

study as well as the aforementioned studies by Inuwa et al., (2011), 44.5% of students exhibited a positive attitude and preference for online examination attributed to the high quality of specimens that used for learning rather than cadavers.

Differences in attitude toward online examination due to Studied Variables:

To have a more exploratory viewpoint, the research intends to find the differences in student's attitudes toward online examination and mentoring according to all previous variables. Since not have a normal distribution, this section of analysis was examining the non-normal distribution.

To assess attitude toward online examination and mentoring, the Mann-Whitney and Wilcoxon test is a non-paramedic test since the data is not normally distributed. The survey examines the student's attitude toward online examination and mentoring according to gender, year, college, degree.

Table 4.
The Mann-Whitney and Wilcoxon test results for student attitude toward online examination and mentoring according to gender.

	gender	N	Mean rank	Sum of ranks	Mann-Whitney	Wilcoxon	Sig.
attitude toward online examination and mentoring	Male	212	386.80	82001.50	57176.5	208701.5	0.680
	Female	550	379.46	208701.50			

According to table 4, there is no difference among the gender in student attitude toward online examination and mentoring, in which Mann-Whitney is (57176.5) and it is not significant at level (0.680) with favor to the female which has a higher mean (386.8). These results agree with the results of a study by Jeljeli et al., (2018) found no difference in the preference of the online examination tool due to gender. Also, these results disagree with the results of a study by Bahar and Asil (2018) explored male students showed higher positive attitudes compared to female students, these differences were attributed to their higher usage of computers and higher technology experience compared to their female peers. Likewise, a study by Inuwa et al., (2011) revealed that the male medicine and healthcare students also showed a high preference for online examination counterparts their female peers.

To assess student attitude toward online examination and mentoring according to year, degree, and college, the Kruskal-Wallis test a non-paramedic test since the data is not normally distributed.

Table 5.
The Kruskal-Wallis test results for student attitude toward online examination and mentoring according to year.

	year	N	Mean rank	Chi-square (df=3)	Sig.
attitude toward online examination and mentoring	First-year	320	399.50	22.301	0.000
	Second-year	116	395.67		
	Third-year	148	412.55		
	Graduation year (fourth and more)	178	314.09		

According to table 5, there is a difference among the year in student attitude toward online examination and mentoring which chi-square is (22.301) and it is significant at level (0.000) with favor to the Third year which has a higher mean (412.55). These results agree with the results of a study by Jeljeli et al., (2018) found differences appear due to time spent in the university.

Table 6.
The Kruskal-Wallis test results for student attitude toward online examination and mentoring according to degree.

	Degree	N	Mean rank	Chi-square (df=3)	Sig.
student attitude toward online examination and mentoring	Diploma	59	383.18	2.349	0.503
	Bachelor	676	379.01		
	Master	21	453.29		
	PhD	6	394.58		

According to table 6, there is no difference among the degree in the student attitude toward online examination and mentoring, in which chi-square of the Chi-square is (2.349) and it is not significant at level (0.503) with favor to the Master which has a higher mean (453.29).

Table 7.
The Kruskal-Wallis test results for student attitude toward online examination and mentoring according to college.

	college	N	Mean rank	Chi-square (df=2)	Sig.
student attitude toward online examination and mentoring	Literature College	521	381.33	31.950	0.000
	Science College	199	418.65		
	Medical college	42	207.57		

According to table 7, there is a difference among the college in the student attitude toward online examination and mentoring which chi-square is (31.950) and it is significant at level (0.000) with favor to the Science College which has a higher mean (418.65). These results agree with the results of Jeljeli et al., (2018) found differences appear due to subject matter.

Conclusions

This study provided theoretical and practical insight into students' attitudes toward online exami-nation and mentoring. This study aimed to enrich the national online learning context and settle the skeptical arguments regarding the student's attitude toward online examination and miscon-duct among them. To achieve this goal, the sample of the study consists of 762 higher education learners in Saudi universities. The results of the study showed those positive students' attitudes toward online examination and mentoring. The results also suggest that no significant differences exist on the dependent variables between the different genders and degrees, and significant differ-ences were evident on the dependent variables related to study year and college.

The results emphasized the positive attitudes toward online examination and mentoring among Saudi university students, where the students greatly agreed on they rather take the online examina-tion than take the paper exam. Also, students claimed that the online examination improves their cognitive skills. In another hand, students illustrated that using the assessment method of online examination is flexible, accurate, and reliable, as well as the online examination enables to show better academic achievement.

These results agreed with the results of a study Peytcheva-Forsyth et al., (2018) pointed that the established, however, that employed students have a higher positive attitude toward online learning since they share a greater need for online learning compared to their unemployed peers since online is a more flexible learning environment to employed students. It also agreed with Bahar and Asil (2018) presented the positive attitude results toward online examination.

Suggestions

In the recommendations, the study called for the qualification of teachers, parents, and students themselves, and the creation of appropriate electronic means that make the process of the remote examination an interactive process and easy to deal with by providing appropriate devices for students and free internet lines, as well as by adapting educational curricula and means to become able to learn remotely. Remote

evaluation through exams can also measure the learner's ability to recall and understand knowledge quickly. The study also suggested increasing the time for objective questions, taking into account the time for essay questions, given that electronic writing requires more time than paper writing, with the need to return to the previous question, in addition to raising the percentage of final exams for some specialties, including medicine.

Bibliographic references

Arora, S., Chaudhary, P., & Singh, R. (2021). Impact of coronavirus and online exam anxiety on self-efficacy: the moderating role of coping strategy. Interactive Technology and Smart Education, 1-18. doi: https://doi.org/10.1108/ITSE-08-2020-0158

Bahar, M., & Asil, M. (2018). Attitude towards e-assessment: influence of gender, computer usage and level of education. Open Learning: The Journal of Open, Distance and e-Learning, 33(3), 221-237. doi: https://doi.org/10.1080/02680513.2018.1503529

Bettinger, E., Loeb, S., & Taylor, E. (2014). Remote but Influential: Peer Effects and Reflection in Online Higher Education Classrooms. Center for Economic Studies; Information and Forschung (CESIfo). doi: https://doi.org/10.1.1.712.4978

Daffin, L. W., & Jones, A. A. (2018). Comparing student performance on proctored and nonproctored exams in online psychology courses. Online Learning, 22(1), 131-145.

Greenberg, K., Lester, J. N., Evans, K., Williams, M., Hacker, C., & Halic, O. (2008). Student Learning with Performance-Based, In-Class and Learner-Centered, Online Exams. International Journal of Teaching and Learning in Higher Education, 20(3), 383-393.

Hakim, B. M. (2017). Comparative study on validity of paper-based test and computer-based test in the context of educational and psychological assessment among Arab students. International Journal of English Linguistics, 8(2), 85-91. doi: http://doi.org/10.5539/ijel.v8n2p85

Hylton, K., Levy, Y., & Dringus, L. P. (2016). Utilizing webcam-based proctoring to deter misconduct in online exams. Computers & Education, 92-93(2016), 53-63.

Ilgaz, H., & Adanır, G. A. (2020). Providing online exams for online learners: Does it really matter for them? Education and Information Technologies, 25, 1255–1269. doi: 10.1007/s10639-019-10020-6

Inuwa, I. M., Taranikanti, V., Al-Rawahy, M., & Habbal, O. (2011). Perceptions and Attitudes of Medical Students towards Two Methods of Assessing Practical Anatomy Knowledge. Sultan Qaboos Univ Med J, 11(3), 383–390. doi: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3210049/

James, R. (2016). Tertiary student attitudes to invigilated, online summative examinations. International Journal of Educational Technology in Higher Education, 13, 1-13. doi: https://doi.org/10.1186/s41239-016-0015-0

Jeljeli, R., Alnaj, L., & Khazam, K. (2018). A Comparison Between Moodle, Facebook, and Paper-based Assessment Tools Students' Perception of Preference and Effect on Performance. International Journal of Emerging Technologies in Learning (iJET), 13(5), 86-99.

Joshi, A., Vinay, M., & Bhaskar, P. (2020). Impact of coronavirus pandemic on the Indian education sector: perspectives of teachers on online teaching and assessments. Interactive Technology and Smart Education, 17(4), 1-22. doi: https://doi.org/10.1108/ITSE-06-2020-0087

Khalil, R., Mansour, A. E., Fadda, W. A., Almisnid, K., Aldamegh, M., Al-Nafeesah, A., & Alkhalifah, A. (2020). The sudden transition to synchronized online learning during the COVID-19 pandemic in Saudi Arabia: a qualitative study exploring medical students' perspectives. BMC Medical Education, 20(2020), 1-10. doi: 10.1186/s12909-020-02208-z

King, C. G., Guyette, R. W., & Piotrowski, C. (2009). Online Exams and Cheating: An Empirical Analysis of Business Students' Views. Journal of Educators Online, 6(1), 11. doi: https://eric.ed.gov/?id=EJ904058

Marchisio, M., Barana, A., Fioravera, M., Rabellino, S., & Conte, A. (2018). A Model of Formative Automatic Assessment and Interactive Feedback for STEM. 42nd Annual Computer Software and Applications Conference (COMPSAC) (pp. 1016-1025). Tokyo, Japan: IEEE. doi: 10.1109/COMPSAC.2018.00178

Myyry, L., & Joutsenvirta, T. (2015). Open-book, open-web online examinations: Developing examination practices to support university students' learning and self-efficacy. Active in Higher Learning, 16(2), 119-132.

Nguyen, J.G., Keuseman, K.J., & Humston, J.J. (2020). Minimize Online Cheating for Online Assessments During COVID-19 Pandemic. J.

Chem. Educ., 97(9), 3429–3435. doi: https://doi.org/10.1021/acs.jchemed.0c00790

Öz, H., & Özturan, T. (2018). Computer-based and paper-based testing: Does the test administration mode influence the reliability and validity of achievement tests? Journal of Language and Linguistic Studies, 14(1), 67 - 85.

Paul, J., & Jefferson, F. (2019). A Comparative Analysis of Student Performance in an Online vs. Face-to-Face Environmental Science Course From 2009 to 2016. Front. Comput. Sci., 1(7), 1-9. doi: https://doi.org/10.3389/fcomp.2019.00007

Peytcheva-Forsyth, R., Yovkova, B., & Aleksieva, L. (2018). Factors Affecting Students' Attitudes Towards Online Learning - The Case of Sofia University. the 44th International Conference on Applications of Mathematics in Engineering and Economics (pp. 1-9). Bulgaria: AIP Publishing. doi: https://doi.org/10.1063/1.5082043

Ragupathi, K. (2020). Designing Effective Online Assessment. Singapore: National University of Singapore (NUS).

Sheridan, L., Kotevski, S., & Dean, B. (2014). Learner perspectives on online assessments as a mechanism to engage in reflective practice. Asia-Pacific Journal of Cooperative Education, 15(4), 335-345. doi: https://files.eric.ed.gov/fulltext/EJ1113574.pdf

Shraim, K. (2019). Online Examination Practices in Higher Education Institutions: Learners' Perspectives. Turkish Online Journal of Distance Education-TOJDE, 20(4), 185-196. doi: https://doi.org/10.17718/tojde.640588

Tarricone, P., & Newhouse, C. P. (2016). Using comparative judgement and online technologies in the assessment and measurement of creative performance and capability. International Journal of Educational Technology in Higher Education, 13(2016), 1-11.