Electronic Learning and its Implications on Job Burnout: An Exploratory Study Depending on Opinions of a Sample of Faculty Members at the University of Mosul

By

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Abstract

The COVID-19 pandemic has led to many societal changes, including in education, where teachers were affected cognitively and emotionally. Distance learning engagement has clearly been one of the most prominent changes required from teachers. Although E-learning has helped continue education in the face of the lockdowns and social isolation of Covid-19. Still, it may significantly alter the job characteristics of faculty, and thus have some unintended consequences for faculty potential and performance, as well as the emergence of various negative manifestations on teacher health, such as job burnout. The study aimed to determine whether there is a relationship between the level of e-learning and job burnout for faculty members at the University of Mosul. To collect the data, a questionnaire was used, which was distributed to 384 participants. The results showed that the faculty members showed symptoms of dulling feelings and a lack of sense of achievement. They did not show fatigue when using e-learning.

Keywords: E-learning, job burnout, Mosul University, Faculty Members.

1. Introduction

There is little doubt that teaching is a stressful profession (for a review, see (Garca-Carmona, Marn, and Aguayo, 2019)). In 2020, teachers faced a completely new challenge: the COVID-19 pandemic, which was described as "the greatest challenge that we have faced since World War II" (Tsourela and Nerantzaki, 2020). There is little doubt that teaching is a burdened profession (for a review, see ((Saha and Dutta, 2020). However, the psychological effects of COVID-19 on both the general population and, in particular, teachers, are very serious and should not be taken lightly (Parte and Herrador-Alcaide, 2021). As a result of the growing social distance, 194 countries decided to close their schools to contain the pandemic (UNESCO, 2020). Teachers could instruct their classes online, giving their pupils access to various resources and offering emotional support even when they were physically absent. Teachers were put in a position where they faced an especially high risk of becoming infected as schools gradually reopened (Weißenfels, Klopp, and Perels, 2022). The pandemic caused by the Coronavirus led to social isolation due to strict confinement for several months, followed by a period during which severe restrictions on movement were imposed. The effects of the coronavirus pandemic on mental health, such as stress, fatigue, poor health, and mental disorders, have received much attention from academics. (Daumiller et al., 2021) looked into the transition from traditional classroom instruction to online instruction.

According to the findings of this study, the participants' fatigue levels increased, which was reflected in their overall performance.

A sample of Canadian educators was used in a research project (Sokal, Trudel, and Babb, 2020) that looked at the first three months of the pandemic caused by the Coronavirus. The findings of his research indicated that teachers experienced an increase in several feelings, such as exhaustion, in addition to a negative attitude towards the shift in the method of instruction that was being utilized in the classroom.

In many countries, including Iraq, synchronous and asynchronous e-learning models have been combined. As a consequence of this situation, a great number of educators have been required to modify their instructional practices in a short amount of time, as well as to develop their educational and technological competencies further, and to take on the role of learning manager more frequently. This resulted in teachers experiencing stress, which led to the development of fatigue syndrome and feelings of isolation, which negatively impacted teachers' overall performance (Parte and Herrador-Alcaide, 2021). However, the psychological effects, including burnout, of teachers working in higher education institutions have been hardly analyzed and studied (Watts and Robertson, 2011), and additional research is still required (Madigan and Kim, 2021). Studies that were carried out on the realities of e-learning during the pandemic caused by the Coronavirus revealed the existence of a great deal of difficulty and difficulty as a direct result of the utilization of this method of education. A study (Hasan and Bao, 2020) showed that teachers were exposed to a high degree of fatigue and faced health problems (headache and tired eyes) due to their long stay in front of screens to prepare and present the educational material. Teachers spent so much time preparing and presenting the educational material. According to the findings of a study carried out by Méndez et al. in 2020, educators who reported high levels of burnout also reported high levels of depression and lower levels of self-esteem. Even more worrisome is the situation at the university level, given that the University serves as a dynamic agent of both regional and national development in addition to being an educational institution (Gallardo, 2020, 7). Therefore, it is essential to conduct research on and understand the factors that contribute to teacher fatigue to improve job satisfaction, subjective health, and learning outcomes, as well as for the benefit of society as a whole. In addition, there is insufficient space for education at home, as most homes do not provide a comfortable environment for providing scientific material through e-learning. According to the findings of Simamora's research (2020, 88), it was abundantly clear that e-learning and the platforms that support it may not be appropriate for all areas of educational study. The outdated computers also pose other technical challenges for both students and teachers, including the inability of these devices to run modern software (Sari and Nayr, 2020). In addition, a significant number of educators lack the necessary technical expertise, which makes it challenging for them to adapt to the e-learning approach (Dubey and Pandey, 2020). as well as the fact that the majority of developing nations are resistant to e-learning (Alipio, 2020).

The organization of the paper is as described below. The review of previous research is covered in the following section. The third section explains the methodology and materials, including participants, dimensions, measures, and instruments, as well as the survey procedure and descriptive statistics. The findings are discussed in the following section (number 4). The recommendations are discussed along with the findings in the fifth section of the report. The conclusions are presented in the final section.

2. Literature

According to the findings of recent research, the term "e-learning" can be interchangeably referred to as "distance learning," "open learning," "online learning," "virtual

learning," "electronic learning," and "mobile learning." Mobile learning refers to the process of acquiring knowledge through the use of mobile devices and tablets. E-learning is defined by Bakia et al. and Means et al. as any learning that takes place wholly or partially through the utilization of the Internet as a teaching tool. The term "e-learning" can also be referred to as any of these other terms (Simamora, 2020). "Online learning" is something that Allen and Seaman, in addition to Casanova and Price, define as "learning that takes place at least 80% of the time through the use of the Internet" (Simamora, 2020). According to Keis, it is web-based software that can distribute, track, and manage teaching courses that are provided via the internet (Mukhtar et al., 2020). According to Sadeghi (2019), one of the various types of learning in which the student is not always present at the study site is known as distance learning. This means that he learns and qualifies in the subject he has chosen via the Internet, without coming to the exam center, college building, or university campus. Additionally, he does not need to bring any physical materials with him. One of the types of learning is known as distance learning

E-learning Definition

According to Maslach et al. and Spielberger et al. (1983), burnout is a syndrome characterized by decreased personal accomplishment, increased emotional exhaustion, and increased depersonalization. This syndrome is experienced by people who work closely with other people. According to Maslach and Leiter (Maslach and Leiter, 2016), teacher burnout is "a psychological syndrome emerging as a prolonged response to chronic interpersonal stressors on the job." (Maslach and Leiter, 2016, p. 103). The World Health Organization (WHO) will provide an updated definition of burnout in the year 2019, considering that burnout is "a syndrome conceptualized as resulting from chronic workplace stress that has not been successfully managed." Three dimensions characterize it: feelings of energy depletion or exhaustion, increased mental distance from one's job, or feelings of negativism or cynicism related to one's job, and decreased professional efficacy. (Organization, 2019).

3. Theoretical Framework

Based on the literature review, a research model was developed to examine the relationship between e-learning and job burnout among faculty members at the University. Figure 1 shows the conceptual framework of the current study.

Dimensions of e-learning
Technology support

(Gal and Nachmias, 2011) defines technology support as "a means of online learning and performance support that integrates learning and task performance into a single work by providing information and guidance about the task in response to specific needs and situations. Thus, it allows learning on the job." (Pai et al., 2021) (and Gutfleisch et al., 2011) identify the characteristics of technical support as follows: provide an easy-to-use platform to install and operate, provide minimum system requirements, and overcoming the difficulties of e-learning provided to both teachers and learners.

Student achievement assessment

Academic achievement can be defined as the extent to which a student has achieved educational goals due to studying a subject (Demuyakor, 2020). Additionally, academic achievement can be defined as the degree of acquisition achieved by an individual, or the level of success that he achieves or reaches in a study subject, or an educational field. Lastly, academic achievement can be defined as the degree to which a student is successful in an educational field or a study subject—alternatively, a special training (Demuyakor, 2020). E-

learning has required many instructors to rethink their teaching methods to be consistent with e-learning (Clothey, 2010). One example of this is the establishment of criteria for evaluating students' achievements, which may include the following: the creation of brief electronic tests during the teaching process to assess the student's level of understanding and ability to comprehend, as well as the incorporation of written examinations and essay questions to evaluate the student's level of analytical and innovative thinking skills (Ammar et al., 2020).

Teacher properties

E-learning imposes new changes on the teacher's roles. After being the main source of information, his role is now focused on guidance, direction, individual and group assistance, software development, production, and use, and preparation of educational situations specified that in e-learning, the focus is on the learner. The teacher's roles are changed from a teacher to a content facilitator, a facilitator of educational processes, a mentor, a researcher, and then a designer and manager of educational processes (Alqahtani and Rajkhan, 2020).

Management support

The term "administrative support" refers to the assistance provided by the administration of an organization toward implementing change programs. This assistance can take the form of both financial and emotional backing (Demuyakor, 2020). E-learning objectives, e-learning plans, and programs, e-learning timetables, setting strategy and goals for both the short term and the long term, and preventive and corrective control of e-learning program deviations, are all included in the administrative dimension of e-learning (Stoecklin et al., 2020).

Course content

It means the educational course's final presentation interface, through which learners' learning processes are managed. It includes the ability to present scientific and educational content in a technical way that supports the educational goals announced for the scientific content (Stoecklin et al., 2020). It takes place in a safe and accessible virtual environment that provides an opportunity for discussions and communication between the teacher and the learners themselves. They can monitor their performance and provide statistical readings of their various activities (Alqahtani and Rajkhan, 2020).

Dimensions of job burnout
Job stress

(Hlehel and Amir, 2018)stated that emotional stress is the employee's loss of his sense of self-confidence and morale, as well as his loss of interest in the beneficiaries of the service and his exhaustion of all his energy and sense. This dimension also shows the employee's feeling of fear and dread when he thinks of going to work, and this happens as a result of excessive psychological and emotional requirements by the public who receive their services, so the symptoms of burnout are largely related to the incumbents whose work requires great immersion in the work(Werneke et al., 2020).

Dull feelings

Maslak explained that with time, the occurrence of emotional stress is followed by the emergence of a hostile response towards others. This is a self-protection mechanism that the individual resorts to to confront the pressure of work, and it appears in the individual's attempt to avoid dealing with colleagues and work-related situations. Moreover, Maslak noted that the hostile response toward others manifests the individual's attempt to avoid dealing with work-related situations (Saha and Dutta, 2020). Symptoms associated with this dimension include

being cruel in dealings, pessimism, frequent criticism, sarcasm, blaming colleagues, and disregarding other people's feelings (Alipio, 2020).

Lack of personal achievement

It means the stage of self-assessment of job burnout, in which the individual begins to decrease the value of everything related to his person, doubts his capabilities, and loses confidence in himself with a severe reprimand for it, which leads to low results and a feeling of failure (Parte and Herrador-Alcaide, 2021). Maslach defined the lack of personal achievement as "the decrease in the individual's sense of his efficiency and fruitful achievement in his work with people (Hasan and Bao, 2020).

The methodology

The descriptive-analytical method was used for this study. The five-point Likert scale range was calculated based on (1) Strongly disagreed, (2) Disagree, (3) Neutral, (4) Agree, and (5) Strongly agree, with the analysis of results using a statistical application called the Statistical Package for the Social Sciences (AMOS).

Study population and sample

The faculty members of the faculties (College of Administration and Economics, College of Arts, College of Computer Science and Mathematics, College of Education for Human Sciences, College of Education for Pure Sciences) at the University of Mosul make up the research community. The number of faculty members at the University of Mosul is 1,310, according to the websites of these faculties, and the Human Resources Division verified this number in each college. The websites of these faculties can be found here. Since our study requires the application of the structural equation modeling method to analyze the questionnaire form, we will be relying on two methods to determine the sample size: the first method (Krejcie and Morgan, 1970) (Azeez and LAKULU, 2018) and the second method (sekaran, 2000) (sekaran, 1983) (Azeez and Mohammed 2022), who determined the sample size. Before beginning any study, it is necessary to determine the appropriate sample size for accurate data analysis. As was mentioned, this means that in accordance with the two methodologies, the appropriate sample size is comprised of (342) faculty members. Faculty members were given a paper copy of the questionnaire to complete and return.

Study hypotheses:

Following the plan for the study and with the goals that it set out to accomplish, the researchers developed the following primary and secondary hypotheses:

There is no evidence that e-learning has a statistically significant impact on the level of job exhaustion experienced by professors at the University of Mosul.

The second primary hypothesis can be broken down into the following set of sub-hypotheses:

1   The management support dimension does not appear to have a statistically significant impact on the level of job burnout experienced by professors working at the University of Mosul.
2   The course content dimension does not appear to have a statistically significant impact on the level of job burnout experienced by professors working at the University of Mosul.

3   The technological support dimension does not appear to have a statistically significant effect on the level of job burnout experienced by professors working at the University of Mosul.

4   The factor of assessing student achievement in job burnout among professors at the University of Mosul does not have a statistically significant effect.

5   There is not a statistically significant relationship between the characteristics of the teacher and the level of job burnout experienced by professors at the University of Mosul.

5. Results

Respondents' profile and characteristics

The study showed that the age group (50-45 years) had the highest percentages, with a value of (50), and the age group (46 years and over) came in the second place with a percentage of (44%), while the age group (35-26 years) reached (6%). The percentage of males surveyed at the University of Mosul was (62%), which is higher than the percentage of females, which amounted to (38%). The proportion of the respondents with the title of teacher came with the highest percentage, it reached (43%), while the respondents with the title of assistant professor reached (28%). They are in the second place, and the titles of assistant teacher and professor came in the third and fourth ranks, respectively, with a percentage of (16%) and (13%), respectively.

Structural equation modeling analysis

The information that was gathered was analyzed using a technique called structural equation modeling. The SEM analysis that was performed was a two-step process. The first step was an evaluation of the measurement model, and the second step was an estimate of the structural model. After completing the measurement model analysis, the structural model analyses were carried out. First, all possible model combinations and the confidence factors were analyzed using the measurement model. It is important to keep in mind that the structural model was analyzed in an untrusting manner. It was essential to carry out this procedure to determine how the predictive power of the suggested model varies depending on whether or not trust is included.
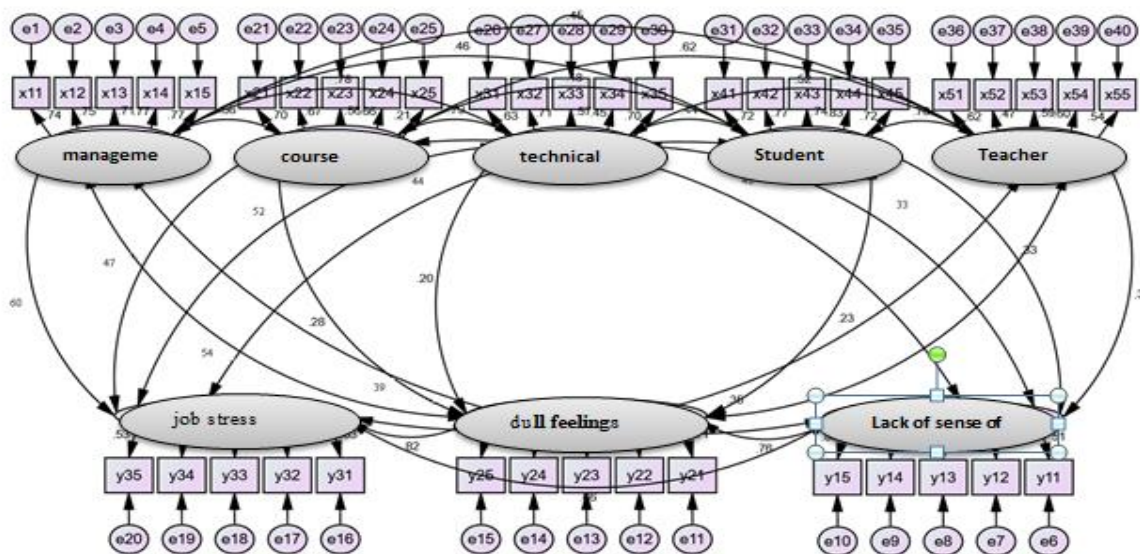
Measurement model: Confirmatory factor analysis

First, the fitness of the (unidimensionality) model was tested using CFA, and after that, the constructs' reliability and validity were evaluated.

Model fitness

Several important fitness indices, such as CMIN/DF, CFI, AGFI, RMSEA, and GFI, were examined to evaluate how well a model fits its data. The following is a list of the fitness indices that were obtained using the standard model: As can be seen in Table 1, the CMIN/DF value is 1.88, the AGFI value is 0.967, the GFI value is 0.970, the CFI value is 0.885, and the RMSEA value is 0.062.

Table 1. *Results of the measurement model*

"Fit indices"	Cut- off point	"Initial measurement model"	Diction
"CMIN/DF"	"≤3.000	1.88	identical
"GFI"	"≥0.90"	0.970	identical
AGFI"	"≥0.80	0.967	identical
"CFI"	"≥0.90	0.885	identical
"RMSEA"	"≤0.08	0.062	identical

Figer 1. *Measurement model*

Structural model

After conducting a confirmatory factor analysis (CFA) to ensure that the study model corresponds to the data of the researched sample and that the model met the quality standards of conformity required and specified, it became feasible to test the study's hypotheses as outlined in its methodology. In addition to this:

Analysis of the impact
Researching how e-learning affects feelings of exhaustion on the job

The first primary hypothesis is that, at the significance level (p 0.05), there is no evidence that e-learning contributes to the effect of job burnout experienced by teachers.

The nature of the impact that e-learning dimensions have on job burnout is illustrated in tables (2) and figures (2), respectively. The method of unweighted least squares was used to estimate the regression equation rather than the maximum likelihood method. This was done because there were several issues in the data that were being examined, one of which was that the data did not have a normal probability distribution. The results showed that there are several issues with the data. This effect is significant in terms of the probability value (p-value), which appeared equal to (0.016), which is less than (0.05), and this leads us to conclude that there is an inverse and significant effect of e-learning on job burnout in terms of the value of the regression coefficient, whose value appeared equal to (-0.39) and whose value appeared to be equal to (-0.39). Because increasing the interest in e-learning by one unit, the job burnout of the teachers will decrease by (39%), and the same results confirm the similarity of the signs of the minimum and maximum confidence limits (95% Confidence Interval), where both appeared with a negative sign. In conclusion, increasing the interest in e-learning by one unit will decrease the teachers' job burnout by (39%). Table (2) values of standard and non-standard regression coefficients for the model of the impact of e-learning on job burnout

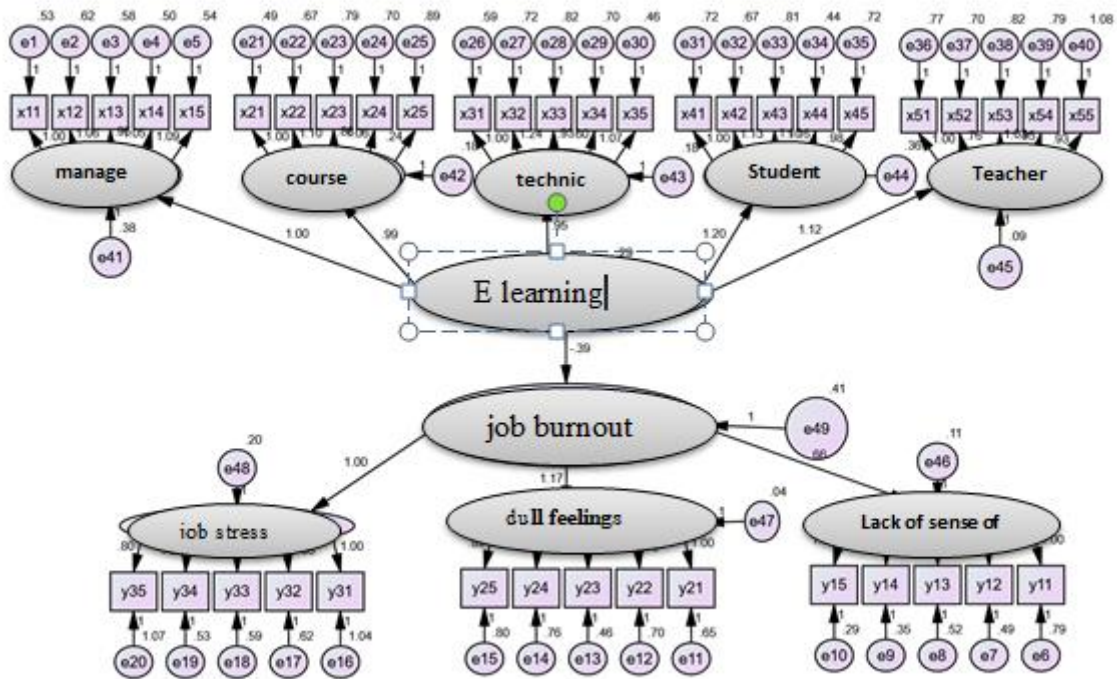| P-value	95% Confidence Interval		SRW	Estimate(β)	dependent variable	impact direction	explanatory variable
0.016	-0.787	Lower	-0.31	-0.39	job burnout	←	E-Learning
	-0.171	Upper					

Figure (2) *online education's impact on exhaustion at work*

Sub-hypotheses of the second main hypothesis

The impact of e-learning dimensions on job burnout and my agencies is made abundantly clear by Table (34), as well as Figure (11), which presents the data.

1   There is a negative effect, but it is not significant to support management in job burnout, in terms of the value of the regression coefficient, whose value appeared equal to (-0.083). This effect is not significant in terms of the probability value (p-value.), which appeared equal to (0.222), which is greater than (0.05), and this leads us to the conclusion that if the administration increases e-learning support, the job burnout of teachers will not decrease. 2. There is a positive effect

2   There is an adverse and significant effect of the course content on job burnout in terms of the value of the regression coefficient, whose value appeared equal to (-0.223), and this effect is significant in terms of the probability value (p-value.), which appeared equal to (0.032), which is less than (0.05). This leads us to the conclusion that if the interest in the course content increases by one unit, the job burnout of teachers will decrease by (22%), and the correlation between the interest in the course content and

3   There is an adverse effect, but it is not significant for the technological support in job burnout in terms of the value of the regression coefficient, whose value appeared to be equal to (-0.139). This effect is not significant in terms of the probability value (p-value.), which appeared to be equal to (0.128), which is greater than (0.05), and this leads us to the conclusion that by increasing the technological support in e-learning, the job burnout of the teachers will not be reduced. 4. There is

4   There is an inverse and significant effect of evaluating the student's achievement in job burnout in terms of the value of the regression coefficient, whose value appeared equal to (-0.238). This effect is significant in terms of the probability value (p-value.), which appeared equal to (0.013), which is less than (0.05)), and this leads us to the conclusion that increasing the interest in evaluating student achievement in e-learning by one unit, the job burnout will decrease by that amount. 5. There is

5   There is an inverse and significant effect of the teacher's characteristics on job burnout in terms of the regression coefficient's value, which appeared equal to (-0.429). This effect is significant in terms of the probability value (p-value.), which appeared equal to (0.019), which is less than (0.05). This leads us to conclude that with the increase in interest in the characteristics of the teacher in e-learning by one unit, the job burnout of the teacher will increase by one unit. This

Table (3): *Analysis of the impact of e-learning dimensions on job burnout*

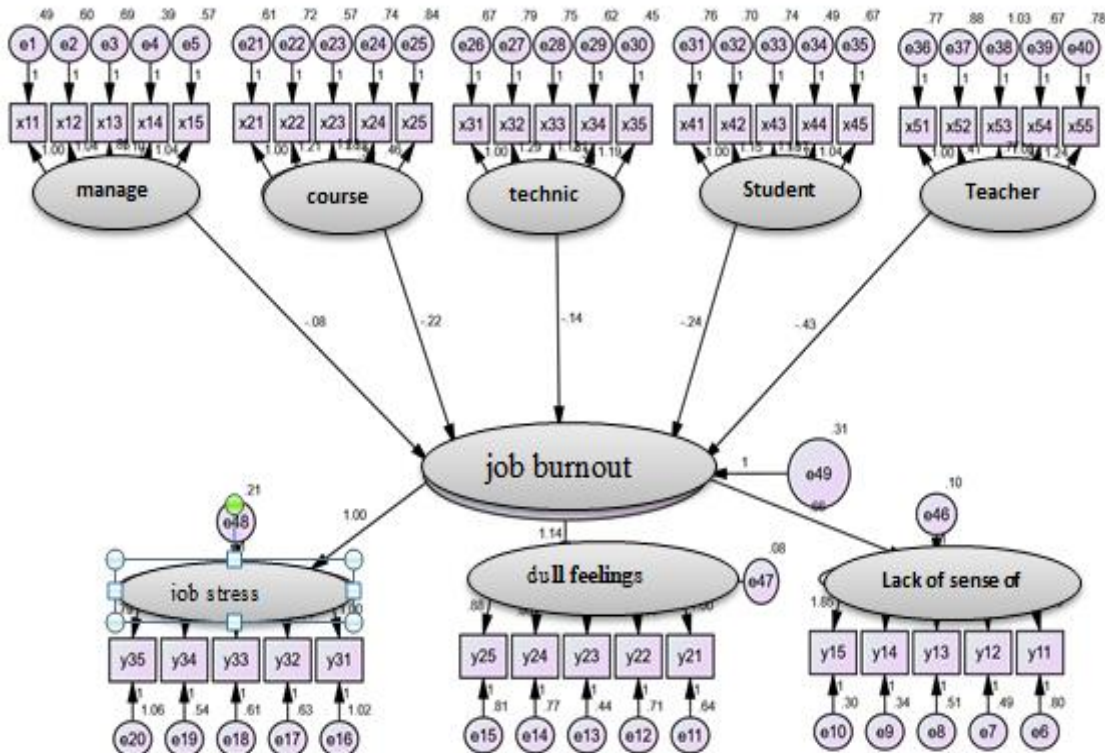| P-value	95% Confidence Interval		SRW	Estimate(β)	dependent variable	impact direction	explanatory variable
0.222	-0.197	Lower	-0.102	-0.083			Management support
	0.040	Upper					
0.032	-0.447	Lower	-0.194	-0.223			Course content
	-0.016	Upper					
0.128	-0.349	Lower	-0.122	-0.139	job burnout	←	technology support
	0.038	Upper					
0.013	-0.368	Lower	-0.298	-0.238			Student achievement assessment
	-0.113	Upper					
0.019	-6.49	Lower	-0.421	-0.429			teacher characteristics
	-0.212	Upper					

Figure (3) *the effect of e-learning dimensions on job burnout*

6. Discussion

The results showed that there were no significant differences between males and females in the levels of (job stress), (dullness of feelings), and (lack of sense of achievement), implying that there is no difference between males and females in job stress, feelings of dulling, and lack of sense of achievement for a sample of professors at the University of Mosul. There was also no correlation between age and job stress, apathy, or a lack of satisfaction with one's life's work among the study's participants. There were no statistically significant differences between the various ranks of scientific titles with respect to job stress, emotional numbness, or feelings of diminished accomplishment. That is to say, those with higher academic degrees experience the same levels of job stress and emotional numbing as those with lower degrees. Moreover, the research population as a whole reported feeling unaccomplished. In contrast to the finding of another study (Parte and Herrador-Alcaide, 2021), which found that faculty members at the University of Jordan experience stress due to their work, this one found that faculty members at the University of Mosul do not experience job-related stress as a result of their use of e-learning. Consistent with what was found in the study (Weißenfels, Klopp, and Perels, 2022), the faculty at the University of Mosul lacked emotion. Despite the fact that the study (Al-gharaibeh et al., 2021) found that a medium percentage of e-learners felt they had accomplished little, the results showed that this feeling persisted even when using the technology (Al-gharaibeh et al., 2021).

7. Conclusions

The purpose of the study was to conduct field research on the degree to which e-learning was being utilized at the University of Mosul and the degree to which faculty members felt burned out by their jobs. In addition to this, it sought to determine whether or not there is a statistically significant correlation between the amount of time spent on e-learning and the level of job burnout experienced by faculty members. The questionnaire instrument was used to measure all the variables discussed in this study. The data for this study were collected from a research sample that was dispersed across four colleges that are part of the University of Mosul. The investigation arrived at several conclusions; the most important of these was that both the level of e-learning at the University of Mosul and the level of job burnout among faculty members were average. It is also evident from the findings and the Pearson correlation coefficient that there is a statistically significant relationship between the amount of e-learning faculty members at the University of Mosul participate in and the amount of job exhaustion they experience. Therefore, if universities want to raise and improve the level of e-learning, they should pay attention to providing the most recent and best educational platforms and large-capacity Internet networks.

Furthermore, universities should pay attention to teaching methods, interaction, and communication between teachers and students, as this leads to achieving the educational goals and outstanding educational outcomes. To accomplish the same thing, the University needs to pay attention to how much its faculty members are burned out by their jobs. As a result, the faculty needs to put in significant effort to address all factors that contribute to burnout to maintain a manageable level of it. Suppose future researchers and others interested in the same topic understand the reality of the problem investigated in this study. In that case, it may serve as a signpost for them to conduct additional research related to this topic at universities outside of their own. This may also encourage researchers to research topics related to the field of study better to understand e-learning, its challenges, and limitations, and to assist these educational institutions in becoming more robust.

References

Al-gharaibeh, S.M. et al. (2021) 'The Relationship Between E-learning During Coronavirus Pandemic and Job Burnout among Faculty Members in Public and Private Universities in Jordan'.

Alipio, M. (2020) Education during COVID-19 era: Are learners in a less-economically developed country ready for e-learning? ZBW-Leibniz Information Centre for Economics.

Alqahtani, A.Y. and Rajkhan, A.A. (2020) 'E-learning critical success factors during the covid-19 pandemic: A comprehensive analysis of e-learning managerial perspectives', Education sciences, 10(9), p. 216.

Ammar, A. et al. (2020) 'COVID-19 home confinement negatively impacts social participation and life satisfaction: a worldwide multicenter study', International journal of environmental research and public health, 17(17), p. 6237.

AZEEZ, N.D. and LAKULU, M.M. (2018) 'EVALUATION FRAMEWORK OF MGOVERNMENT SERVICES SUCCESS IN MALAYSIA', Journal of Theoretical and Applied Information Technology, 96(24), pp. 8194–8226.

Azeez, N.D. and Mohammed, N.Y. (2022) 'Factors Influencing Adoption of Mobile Health Monitoring System: Extending UTAUT2 with Trust.', Ingénierie des Systèmes d'Information, 27(2).

Clothey, R. (2010) 'Current trends in higher education: Expanding access in Asia Pacific through technology', Journal of Comparative & International Higher Education, 2(Spring), pp. 3–5.

Daumiller, M. et al. (2021) 'Shifting from face-to-face to online teaching during COVID-19: The role of university faculty achievement goals for attitudes towards this sudden change, and their relevance for burnout/engagement and student evaluations of teaching quality', Computers in Human Behavior, 118, p. 106677.

Demuyakor, J. (2020) 'Coronavirus (COVID-19) and online learning in higher institutions of education: A survey of the perceptions of Ghanaian international students in China', Online Journal of Communication and Media Technologies, 10(3), p. e202018.

Dubey, P. and Pandey, D. (2020) 'Distance learning in higher education during pandemic: challenges and opportunities', Int. J. Indian Psychol, 8(2), pp. 43–46.

Gal, E. and Nachmias, R. (2011) 'Online learning and performance support in organizational environments using performance support platforms', Performance Improvement, 50(8), pp. 25–32.

García-Carmona, M., Marín, M.D. and Aguayo, R. (2019) 'Burnout syndrome in secondary school teachers: A systematic review and meta-analysis', Social Psychology of Education, 22(1), pp. 189–208.

Gutfleisch, O. et al. (2011) 'Magnetic materials and devices for the 21st century: stronger, lighter, and more energy efficient', Advanced materials, 23(7), pp. 821–842.

Hasan, N. and Bao, Y. (2020) 'Impact of "e-Learning crack-up" perception on psychological distress among college students during COVID-19 pandemic: A mediating role of "fear of academic year loss"', Children and youth services review, 118, p. 105355.

Hlehel, M.S. and Amir, A.A. (2018) 'Jop Burnout and Its Relationship to the Cohesion of the Working Groups, Apractical Study in a Laboratory of the Diwaniya Tires', Journal of University of Babylon for Pure and Applied Sciences, 26(8), pp. 192–209.

Madigan, D.J. and Kim, L.E. (2021) 'Does teacher burnout affect students? A systematic review of its association with academic achievement and student-reported outcomes', International journal of educational research, 105, p. 101714.

Maslach, C. and Leiter, M.P. (2016) 'Understanding the burnout experience: recent research and its implications for psychiatry', World psychiatry, 15(2), pp. 103–111.

Méndez, I. et al. (2020) 'Latent profiles of burnout, self-esteem and depressive symptomatology among teachers', International Journal of Environmental Research and Public Health, 17(18), p. 6760.

Mukhtar, K. et al. (2020) 'Advantages, Limitations and Recommendations for online learning during COVID-19 pandemic era', Pakistan journal of medical sciences, 36(COVID19-S4), p. S27.

Organization, W.H. (2019) 'Burnout an "occupational phenomenon": International Classification of Diseases. 2019', World Health Organization, Geneva, Switzerland [Preprint].

Pai, S.M. et al. (2021) 'Science and Evidence-Based Review and Approval of COVID-19 Vaccines: A Statement of Support for the US FDA', Journal of Clinical Pharmacology, 61(3), p. 277.

Parte, L. and Herrador-Alcaide, T. (2021) 'Teaching disruption by COVID-19: Burnout, isolation, and sense of belonging in accounting tutors in e-learning and b-learning', International journal of environmental research and public health, 18(19), p. 10339.

Sadeghi, M. (2019) 'A shift from classroom to distance learning: Advantages and limitations', International Journal of Research in English Education, 4(1), pp. 80–88.

Saha, S. and Dutta, D.T. (2020) 'A study on the psychological crisis during the lockdown caused due to Covid-19 pandemic', Afr J Biol Sci, 3(2), pp. 41–49.

Sari, T. and Nayır, F. (2020) 'Challenges in distance education during the (Covid-19) pandemic period', Qualitative Research in Education, 9(3), pp. 328–360.

Sekaran, U. (1983) 'Methodological and theoretical issues and advancements in cross-cultural research', Journal of international business studies, 14(2), pp. 61–73.

Simamora, R.M. (2020) 'The Challenges of online learning during the COVID-19 pandemic: An essay analysis of performing arts education students', Studies in Learning and Teaching, 1(2), pp. 86–103.

Sokal, L., Trudel, L.E. and Babb, J. (2020) 'Canadian teachers' attitudes toward change, efficacy, and burnout during the COVID-19 pandemic', International Journal of Educational Research Open, 1, p. 100016.

Spielberger, C.D. et al. (1983) 'Consulting psychologists press'. Inc.

Stoecklin, S.B. et al. (2020) 'First cases of coronavirus disease 2019 (COVID-19) in France: surveillance, investigations and control measures, January 2020', Eurosurveillance, 25(6), p. 2000094.

Tsourela, M. and Nerantzaki, D.M. (2020) 'An internet of things (Iot) acceptance model. assessing consumer's behavior toward iot products and applications', Future Internet, 12(11), pp. 1–23. doi:10.3390/fi12110191.

Watts, J. and Robertson, N. (2011) 'Burnout in university teaching staff: A systematic literature review', Educational Research, 53(1), pp. 33–50.

Weißenfels, M., Klopp, E. and Perels, F. (2022) 'Changes in teacher burnout and self-efficacy during the COVID-19 pandemic: Interrelations and e-learning variables related to change', Front. Educ. 6: 736992. doi: 10.3389/feduc [Preprint].

Werneke, U. et al. (2020) 'Serotonin syndrome: a clinical review of current controversies', Journal of Integrative Neuroscience, 19(4), pp. 719–727.