



بيئات التعلم المختلط: دراسة عملية أ. رجاء فتح الله رافع المزيني - كلية الآداب - جامعة طبرق

الملخص :

تهدف هذه الدراسة إلى تحليل مجموعة متنوعة من الدراسات العلمية التي تتعلق بالفلسفات التربوية ، وتشجع هذه الفلسفات البناء المجتمعات الأكاديمية على تطوير استراتيجيات لخلق بيئات تعليمية مدمجة.

التعلم المدمج هو نهج بناء للتعليم والتعلم والذي يتضمن تعليمات الفصل الدراسي التقليدية والتعلم الذاتي والموارد التكنولوجية والتفاعلات الاجتماعية التعاونية، ويعد تزويد المعلمين والطلاب والمجتمعات الأكاديمية بالأدوات التي يحتاجون إليها للمشاركة في بيئات تعليمية مختلطة أكثر كفاءة وإنتاجية - ضرورة أساسية ستزيد من نجاح كل مجتمع أكاديمي.

ستتم الإشارة إلى مجموعة من النظريات الأكاديمية التقليدية ومجموعة من الأبحاث التجريبية الحديثة خلال هذه الدراسة وذلك من أجل تسليط الضوء على مجموعة متنوعة من الموارد المحتملة والخيارات المتاحة للمجتمعات الأكاديمية تحت تصرفهم الفوري، وستركز هذه الدراسة على ثلاث موضوعات تعليمية مختلطة محددة لمساعدة المجتمعات الأكاديمية على زيادة تحصيل الطلاب والمشاركة الأكاديمية: التطوير المهني، البيئات المحفزة للمشاركة، تعديل المناهج والأساليب التعليمية لتلائم قدرات ذوي الهمم.

Blended Learning Environments: A practical Review

Name; Raja Fathullah Rafia

Academic Position; Lecturer-Assistant

University; Topruk University

College; College of Art, English Department

Email; raja.fathallah@tu.edu.ly

Abstract

This literature review will analyze a diverse range of scholarly studies which pertain to pedagogical philosophies. These constructive philosophies encourage academic communities to develop strategies for creating blended

learning environments. Blended learning is a constructive approach to teaching and learning which incorporates traditional classroom instruction, self-paced learning, technological resources, and collaborative social interactions. Providing educators, students, and academic communities with the tools they need to participate in more efficient and more productive blended learning environments is a fundamental necessity which will increase every academic community's success. A collection of traditional academic theories and an array of modern empirical research will be referenced throughout this review in order to highlight the diverse range of potential resources and options academic communities have at their immediate disposal. This literature review will focus on three specific blended learning themes to help academic communities increase student achievement and academic engagement: professional development, engaging environments, and authentic accommodations.

Keywords:

Secondary school curriculum, Instructional design, Inclusion, Competency based teacher education, Active learning, Blended learning, Postsecondary education, Secondary education, Constructive pedagogies, Academic Achievement, Standard-based assessments

Blended learning is an ancient academic philosophy and educational application which allows humans the potential to intuitively adapt according to each individual's evolving challenges and needs; however, blended learning environments require engaging stimuli, authentic accommodations, and constructive interactions in order to help guide each individual learner towards reaching their greatest academic success. Blended learning is a constructive approach to teaching and learning which incorporates traditional classroom instruction, self-paced learning, technological resources, and collaborative social interactions. Professionally trained and certified educators can develop blended learning environments which will enable their students to academically achieve at greater rates and with greater proficiency.

Background Research

Robert Bernard and his associates (2014) claim blended learning trends have inspired 16 major meta-analysis studies and thousands of other minor case studies since the year 2000. Bernard and his associates have conducted



674 studies which resulted in 879 various effect sizes. These studies have been conducted within the United States since 1990. They have displayed positive correlations between blended learning and academic achievement with average effect sizes, reliable quantifiable variances, and consistent standardized deviations. Most recently Bernard and associates have published positive correlations for blended learning and academic achievement. These published results show a 37% increased academic achievement rate within blended learning environments where technology and cooperative learning have been implemented. Based on his primary research and synthesis, Bernard's studies have analyzed specific independent and dependent demographic variables relative to blended learning including pedagogical patterns and learning behaviors. Bernard and his colleagues examined the depths of the debates and discussions related to exploring the possible impacts blended learning opportunities could have on educational environments and multicultural students. Furthermore, they discussed the problematic nature of defining blended learning due to personalized variables, consistent efforts, comparative validity, and systematic opinions. On the other hand, they assert their belief that blended learning environments provide educators and learners with the best educational opportunities.

Barbara Means and her colleagues (2013) used 45 experimental studies and 502 empirical articles to evaluate the patterns of 50 variables within blended learning environments where web-based technology had been integrated into the classroom curriculum. Their descriptive statistics support blended learning with online instruction over classroom instruction. They discovered a mean effect size of (+0.2) with a p-value of less than (+0.001). Their meta-analysis further supports the benefits of online learning by highlighting its significant positive effect sizes on academic achievement rates as opposed to the negative effect sizes associated with traditional classroom instruction (+1.11 to -0.80). They admit access to technological resources, professional pedagogies (+0.13), and personal study time (+0.45) had the greatest effect sizes as well as standard deviations on the students' academic achievement rates (p. 35).

Tessa Owens' (2012) empirical review synthesized 529 student teachers' end-of-the-semester professor evaluation surveys from 54 different

universities in order to measure, to analyze, and to categorize specific variables associated with instructional strategies in relationship to learning styles and academic achievement. Correlation coefficients were measured and analyzed after the surveyed answers had been converted into descriptive statistics. Owens' scatter plots displayed the significant impacts that professional ideals and practices have on the students' academic achievement. The scatterplots with student-centered subsets all (100%) showed positive growth patterns. Teacher-centered classrooms did not display the same consistent growth patterns. Owens exclaimed the need for professional teachers to be certified in student-centered and blended learning instructional strategies. Paired-sample T-tests and MANOVA tests also supported Owens' claims as she revealed statistical differences between the surveyed teachers' ideal beliefs and their honest efforts. An average of 98% of the teachers acknowledged their belief that blended learning environments are naturally more productive; however, only 50% of these teachers integrated blended learning environments into their classrooms. Conversely, only 67% of the student teachers surveyed considered teacher-centered lessons more successful than blended learning experiences; however, 62 % of the student teachers acknowledged their classrooms consistent use of teacher-center lessons.

Professional Development

Mary Pearson (2015) reviewed and supported the Center for Applied Special Technology's (2013) "Universal Design for Learning" as well as the Flip Learning Network's (2014) "Flipped Learning" (pp. 27-28). She was concerned by the unsettling number of untrained educators within our society's current educational system. Tessa Owens mentioned the idea that most professional teachers have general knowledge foundations, but they lack specific student accommodation trainings. Pearson's article discussed her belief that even a limited amount of professional exposure to the "Universal Design for Learning" and "Flipped Learning" theories would enable educators to promote increased academic success. The "Universal Design for Learning" theory is a student-centered curriculum development program which supports blended learning environments. Similarly, "Flipped Learning" strategies are student-centered, and they use blended learning



environments with technological resources to help students increase their social networking and academic communication skills. Pearson observed student teachers and tracked the number of students whose final projects successfully integrated a “Universal Design”. The case study displayed 97% of the students had increased their motivation and comprehension. Like Robert Bernard and his associates (2014), Pearson asserts the idea that blended learning environments use classroom instruction, self-instruction, collaborative efforts, and technological resources to create a multimedia classroom where authentic accommodations and engaging environments are consistently evident. Robert Bernard and his associates discuss the issue that technology has become a mainstream educational resource; however, this technology is not being used efficiently or productively due to poorly planned lessons and untrained teachers. Bernard and his colleagues also emphasize the need for educators to become more interactively engaged with their professional roles and development.

Hugh Clench and Bryan King (2014) continued echoing the need for qualified teachers; except, Clench and King are conducting preliminary blended learning studies in Australia and the United Kingdom. Clench and King have issues with the traditional educational systems in Australia and the United Kingdom due to inconsistent teaching practices, subpar standardized expectations, biased resource distributions, and segregated support systems. Clench and King believe blended learning environments provide academic communities with cost efficient, flexible opportunities as well as resources for differentiated accommodations and individualized learning plans. In fact, after 12 years, the cooperative programs Clench and his associates have developed continue helping thousands of students and hundreds of mentors. The mentors use a curriculum based “Learning Management Systems” to help them support their lessons while students use the learning management systems to help them navigate through their coursework. Learning management systems are digital management systems used to design, to administer, to assess progress, and to academically interact. Each blended learning environment has a ratio of one teacher for every ten to twelve students during a ten-week semester. These interactive communities allow Clench and his academic colleagues to continue to develop their blended

learning pedagogies. Clench and King assert the need for educators to participate in ongoing professional development. They also emphasize the need for professional training seminars to be conducted within relevant settings and with practical applications. Clench and King have seen a direct correlation between an educator's performance and their professional development; in fact, they claim their professional development seminars increase their educator's intervention skills with a 95% success rate, and 85% of their participants reported an increase in their professional confidence. Consequently, Clench and King remind their readers that professional trainings are similar to classroom lessons because the techniques are not always applicable and the teaching strategies are not always appropriately planned.

Ya-Ting Yang and colleagues (2014) used feedback from 83 Taiwanese, English Language Learners to measure their ability to develop metacognitive skills while participating in a blended learning environment. ANOVA tests measured and categorized the students reading, writing, thinking, and communicating skills as well as their ability to inductively and deductively evaluate specific instructional practices and learner production. The results showed a significant relationship between a teacher's professional practices and their students' academic engagement. After participating in this constructive classroom experiment, the students displayed an ability to critically evaluate literal scenarios with a mean score of (+0.25%) increase while their reading scores also increased at an average of (1.50 points). Yang and colleagues also found significant increases in the students' ability to create grammatically accurate compositions; however, Yang and associates acknowledged the only significant standard deviations occurred between the learners' individual groups. The novice learners experienced the greatest rates of academic achievement while the intermediate and advanced groups also displayed growth relative to their proficiency levels. Yang and associates believe their study provides evidence to the reality that the students' academic achievement is directly linked to the educator's ability to accommodate their students with responsible modeling. Collaborative opportunities, constructive feedback, practical applications, and access to resources were shown to



increase the students' efforts and their productivity with insignificant deviations.

Linda Wiechowski and Terri Washburn (2014) analyzed 3000 collegiate students' course evaluations from a Midwestern American university over five semesters. The researchers used a five-point Likert scale as well as Cronbach's Alpha based ratios to help them standardize the survey's data. Wiechowski and Washburn emphasized the idea that students are "information seekers"; therefore, educators must develop learning communities which accommodate their students' need to research, discover, and develop ideas. An average of 80% of their students showed 90% growth while participating in blended learning environments; on the other hand, only 68% of the students showed 80% growth while participating in teacher-centered environments. Traditional teacher-centered classroom students achieved academic success with (+0.10) more standard deviation than students in blended learning environments. Wiechowski and Washburn's study rejected its null hypothesis after the researchers used a Kruskal-Wallis test and a Shapiro Wilk Test to analyze the normality of the test aggregates and their reliability with conclusive results. This allowed them to verify the benefits associated with student-centered and blended learning environments over teacher-center instructions. Although, Wiechowski and Washburn uncovered these significant patterns, their ANOVA test failed to show any significant relationship between instructional techniques and grade point averages. Wiechowski and Washburn emphasize the need for educators to model professional behaviors while accommodating their academic communities.

Engaging Environments

Kim Schneider and her associates (2015) analyzed a recent science, technology, engineering, and mathematics (STEM) report which compiled the retention rates from 190 universities. Schneider and her colleagues were concerned with discrepancies they noticed between graduation rates and retention rates. In fact, they were staggered to discover 59% of the collegiate freshmen from the year 2000 who had declared (STEM) majors had graduated from college by the year 2006. Schneider and her associates emphasized the need for professionally certified and highly qualified mentors when they

focused their review on the University of Michigan's (STEM) program. Even after recruiting the world's brightest students, the data displayed retention discrepancies which the researchers linked to classroom climates, progressive barriers, and biased campuses. 28 out of 100 applicants were offered an opportunity to participate in a student-centered research study. 40% of the students reported a desire to become authentically engaged as well as to be constructively supported. The authors used blended learning communities and mentorship programs to increase their students' satisfaction as well as academic success. 93% of the students involved in the University of Michigan increased their grade point averages while increasing their retention rates, and they displayed greater critical thinking skills. The students reported an increased academic motivation when their educators created academic environments with interactive and collaborative lessons facilitated by professional mentors. These conclusive results allow Schneider and her colleagues to emphasize the benefits associated with blended learning environments, consistent mentoring, interactive opportunities, increased test scores, and greater critical thinking skills.

Jonathan Lean, Jonathan Moizer, and Robert Newbery (2014) from Plymouth University of Plymouth, United Kingdom reference Vic Gilgeous and Mirabelle D'Cruz (1996) when they mention "Learning Laboratories" to describe blended learning environments which integrate simulated gaming into their classroom curriculum. Learning laboratories can make learning more authentic since synthetic workspaces inspire competitive and collaborative opportunities that allow students to interactively learn and critically think. Their studies found that simulated gaming additionally benefits the students, the teachers, and the academic community. Every student's academic progress is data driven and instantly available. The administrators can manually set the learning management system's standards while the assessments are digitally formulated, calculated, categorized, and generated by a curriculum-based learning management system. The opportunity to instantly access the students' formative data is quantitatively valid, and these simulated environments as well as the collected data can be managed or manipulated by the teacher according to individualized learning plans or specific standards. The ability to instantly assess a learner's



performance can create more engaging teachable moments and more opportunities for self-reflection. Lean and his associates reference Bloom's Taxonomy (1956) and Lev Vygotsky's "Zone of Proximal Development" (1925) due to the simulated gaming environment's potential to scaffold the students' learning according to individualized academic needs and learning levels on an interactive and adaptive timeline. As students interactively compete, collaborate, or self-instruct, educators can monitor every student's progress, they can adjust the digital accommodations, or they can choose to participate in appropriate manners.

Lean and his associates compared a blended learning classroom to a corporate organization as an example of a successful blended learning environment. An educator was the corporate organization and classroom's corporate executive officer. 24 to 27 students received managerial permissions for their individual branch of responsibility; thereafter, the teacher assigned the students individual tasks, group responsibilities, and classroom objectives. Every student also became accountable for managing their personal accounts. Lean and his associates witnessed increased academic achievement rates as well as social performance rates among each of the collegiate students involved with this case study. Hugh Clench and Bryan King also voiced their support for simulated gaming environments due to the potential benefits synthetic learning environments could potentially have within academic communities. Synthetic learning environments can help students develop multimedia and communicative skills within interactive lessons. Similarly, academic communities have immediate access to digitally enhanced statistics with personalized analysis. Irene Esteban-Millatt and her associates (2014) encourage educators to create blended learning environments and learning laboratories in order to increase student satisfaction and academic achievement. They also believe academic communities have the potential to track academic patterns as well as to predict potential variables using the data tracking systems linked to learning management systems. Their study used Likert scales, SPSS two-step tests, Kaiser-Meyer Orklin indicators, and Bartlett's sphericity test to synthesize their descriptive details into the least and most important variables associated with teaching pedagogies and academic achievement. Seven expert

interviews and 2,574 questionnaires revealed significant benefits associated with blended learning communities among 29,723 college students. Esteban-Millat and her colleagues made significant discoveries (p -value <0.05) which reinforced the idea that professional pedagogy and teacher input are significant variables for creating more successful learning environments.

Soma Pillay and Reynold James (2013) surveyed random international Australian graduate students with a twenty question Likert-scaled and paper-based questionnaire. The survey had ten questions explicitly asking the students about teaching pedagogies and personal learning styles. The survey asked the students to describe their academic satisfaction in two short answer responses. The survey had eight demographic questions, and 68 cross cultural students chose to participate in the study. Pillay and James were able to support their hypothesis that cross-cultural management systems have positive correlations (average mean +3.13, SD 1.11, p -value <0.05) linking constructive educational pedagogies to academic achievement and student satisfaction. Students reported the opportunity to own their education at a self-paced rate and without social distractions. Students also reported their opportunity to interact more directly and to become more actively engaged in their learning experiences using digital networking software. Finally, students acknowledged the need to become self-disciplined due to time management requirements, but Pillay and James also emphasized the students' satisfaction with their blended learning experience's ability to accommodate their individual needs.

Like Mary Pearson (2015), Amy Roehl and her associates (2013) reviewed "The Flipped Classroom" in order to encourage educators to explore student-centered lessons and holistic approaches, but they also exclaim the need for educators to be willing to challenge themselves by trying new strategies. They especially want educators to "infuse" their blended learning environments with technological instructions and applications. Roehl and her associates describe "The Flipped Classroom" as a blended environment infused with technology and active learning opportunities. Lean and his colleagues' considerations for multimedia presentations are aligned with Roehl and her associates' flipped ideas. Roehl and associates quote Donald Bligh (2000) who wrote, "Despite innovations in technology enabling



alternative techniques for pedagogy, lecture formats continue to be the primary method for teaching” (Roehl, Reddy, & Shannon, 2013, p. 45). Roehl and her colleagues deliberately calculated constructive strategies to help educators incorporate simulated learning environments as well as blended learning strategies into their classrooms which they referred to as the “Mixed Methods Technique” (Zubas, Heiss, & Pedersen, 2006; Carew, Chamberlain, & Alster, 1997 as referenced in Roehl, Reddy, & Shannon, 2013, p. 46). Roehl and her associates finalize their review by writing, “At a time when educational institutions face increasing demands to improve learning experiences and to capture the attention of Millennial students, the Flipped Classroom strategy provides an opportunity to address both these concerns” (p. 48).

Authentic Accommodations

Curtis Henrie, Robert Bodily, Kristine Manwaring, and Charles Graham (2015) measured twenty students’ engagement within blended learning environments and multicultural settings over a longitudinal time at a Utah university where teachers employed interactive instructional strategies and more traditional classroom instructional strategies. The observational data was collected through reflective surveys using the Likert-scale and open-ended questions which were digitally categorized and analyzed with a learning management system. Henrie and his associates hoped to use an intense longitudinal study to develop an academic baseline for measuring the causation associated to a student’s emotional engagement. The 20 student participants used a learning management system to guide their blended learning experience, and they were responsible for completing several projects and a practicum during a fourteen-week course. Henrie and his associates used the curriculum’s learning management system to digitally track their students’ academic performance and classroom interaction. Specific directions, accessible previews, and practical activities were shown to motivate the students more than the educational mediums or instructional styles. The modern trends correlate Henrie and his associates’ study to Lean and his colleagues’ (2014) “Learning Laboratory” with direct correlations to higher achievement percentages, increased retention rates, and more substantial personal engagement. Henrie and his associates claim educator’s

need to design online instructional curriculum which will integrate multimedia resources specifically tailored with pedagogical information, sequential activities, data collection applications, project-based activities, teacher-led instruction, as well as self-development opportunities. Students will need multimedia guides for daily goal setting, specific modeling, ongoing clarifications, constructive feedback, sufficient wait time, and professional diligence. The intensive longitudinal studies Henrie and his associates conducted did not show any significant difference between the students' level of engagement and the instructional strategies employed. Overall, the study's standard deviation had elasticity between (+0.50 and +1.00) with an 81% average student engagement rate within the blended learning environment. Consequently, Henrie and his colleagues believe more research is required in order to create a baseline for improving instructional practices with reasonable accommodations and relevant blended learning interventions.

Sofia Dias and Jose Diniz (2014) chose 36 undergraduate participants from a collegiate sampling pool of 800 students to participate in semi-structured audiotaped interviews. These interviews were transcribed, and their descriptive and inferential data produced common pedagogical themes and specific instructional variables which Dias and Diniz categorized and coded. These categorized codes allowed them to quantifiably calculate their qualitative data for more constructive analysis. The studies allowed Dias and Diniz to support their hypothesis that strategically designed blended learning environments will increase the students' academic engagement and development. 33% of their students began using learning management systems for the first time during this two-year longitudinal study. 47% of their study's population suggested their digital as well as classroom participation had increased throughout the course of this study. Dias and Diniz expressed high confidence levels while correlating their study's empirical evidence to their inferential and descriptive data displayed external validity. Their discovery supports the idea that strategically designed learning management systems will enhance a student's potential for academic success.

Dias and Diniz go onto reference the popularity of Massive Open Online Courses (MOOC) which allows learners from diverse autonomies to collaboratively prepare and share distance education opportunities from



anywhere and at any time. Dias and Diniz used their preliminary study as well as traditional research to claim teachers have an immediate “cause and effect” impact on their students’ academic development and social success (p. 316). Dias and Diniz assert the need for educators to produce learning management systems which give learners access to appropriate, relevant, and constructive educational manipulatives and supplements to guide their independent studies and timely progressions. Professional educators must be prepared to create collaborative blended learning environments which give students access to technologically advancements and communicative tools via multimedia applications according to localized standards. Educators must be prepared to provide students with authentic accommodations, comprehensive input, and constructive feedback. Above all, professional faculty must be sincerely interested and generally motivated to interact with their students (p. 315). Dias and Diniz also made note of the students’ mention of their teachers’ negligent technological instruction and professional development. They described several common sentiments the students shared during their interviews, and these sentiments outlined their genuine educational concerns. According to Dias and Diniz, students need teachers to be more patient and to give them more practical guidance while providing them with collaborative opportunities within productive blended learning environments in order to help them experience more multicultural perspectives (p. 315). Dias and Diniz encouraged educators to create multicultural and blended learning centers due to the original learning scenarios, the symbiotic relationships, and the formal and informal learning and growth which will transpire.

Lisa Giacomo’s (2012) quantitative research study promotes constructive teacher-student interactions using online and blended learning programs. Giacomo used a quasi-experimental research approach to survey 370 pre-service teachers. These student teachers were introduced to blended learning environments during a one-week face-to-face course, and then they were immersed into a digitally enhanced blended learning environment for two weeks. The students were divided into groups, and the separate groups received different directions and feedback. Students in groups that received instructor feedback, but did not follow the rubric averaged lower mean scores (+5.03) with lower standard deviations (+2.549) than the groups that did not

receive feedback, but followed the rubric (mean score +5.45, SD 2.954). Giacomo used a Multivariate analysis, a two-by-two Anova tests as well as an analysis of variance and covariance to measure the students' academic achievement and satisfaction with pretest and posttest results. Interactive engagement and constructive feedback increased the students' academic achievement and satisfaction (average mean score +2.89) with an insignificant increase in standard deviation (+0.4). Giacomo's study used a MANOVA test to reveal the students' academic achievement and satisfaction rates rose 80-90% when they received positive support, constructive feedback as well as explicit prompts and rubrics (p-value<.01).

Conclusions

Lynne T. Diaz-Rico (2010) wrote, "Communicating thoughts is the goal of Language Arts teachers" (p. 1). She also wrote, "Learners...learn by interacting with others" (p. 6). This literary review has researched, synthesized, and interpreted the categorical, dichotomous, continuous, and open-ended data with communicative efficiency and productivity. Centralized tendencies were analyzed and their comparative frequencies and systematic dispersions were calculated according to common variables in order to create predictable patterns and uniformed measurements. Inferential and descriptive statistics were weighed qualitatively and quantitatively with academic theories in an effort to provide professional educators and academic communities with valid answers to their ongoing questions about their students' academic achievement within regards to blended learning environments. Robert Bernard and his associates have determined that blended learning environments have a standard deviation of 33% greater causation on a student's academic success than traditional classroom instruction. Bernard and his associates also emphasized the imperative importance of an educator's use of interactive techniques and supplementary resources to enhance their classroom lessons and their students' practical engagement. Bernard's studies showed blended learning environments enhanced the students' learning with a (+3.00) standard deviation than teacher led instructions. Constructive theorists and educators agree that digitally enhanced blended learning environments as well as constructive teaching pedagogies can create more successful multicultural classrooms.



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