IMPROVING UNDERGRADUATE UNIVERSITY STUDENTS' SOFT SKILLS THROUGH A BLENDED LEARNING MODEL: EMPIRICAL EVIDENCE FROM MOROCCO

Mohammed El Messaoudi, UMI, Meknes
Smail Kerouad, UMI, Meknes
Mustapha Fagroud, UMI, Meknes

ABSTRACT

The growing gap in soft skills among Moroccan undergraduate university students is a pressing concern. This study examined the impact of a blended learning model intervention on soft skills development in this population. A systematically chosen sample of 42 participants, selected from a pool of 400 undergraduate university students, was subsequently allotted into two distinct groups: an experimental cohort exposed to a blended learning intervention and a control cohort. A pretest and posttest research design was employed, utilizing the Anchored BFI as the data collection instrument to assess the levels of soft skills of the study participants. Parametric tests (independent samples and paired samples t-tests) were conducted using SPSS software. The results indicated that the blended learning model intervention had a statistically insignificant impact on improving the soft skills level of the experimental group (Cohen's d = 0.2). Therefore, implementing a blended learning model for soft skills development may not effectively enhance the soft skills level of Moroccan undergraduate university students. These findings offer compelling evidence that underscores the ineffectiveness of the blended learning model for cultivating soft skills within the Moroccan context.

Keywords: *Industry 4.0, Education 4.0, centennials, disruptive technologies, hard skills, soft skills, blended learning*

INTRODUCTION

For many years, education systems worldwide have primarily focused on cognition and the acquisition of technical knowledge, often disregarding the importance of emotion and soft skills (Duderstadt, 1989; Huk, 2021; Makrides, 2019). Traditional educational approaches have heavily emphasized academic achievement and the mastery of subject-specific content, neglecting the development of essential skills such as communication, collaboration, problem-solving, and emotional intelligence (Jamaludin et al., 2009). This narrow focus on cognitive abilities has resulted in a significant gap between the skills imparted in educational settings and those required for success in the modern workforce and society. Recognizing the limitations of this approach, there is a growing acknowledgment of the need to reevaluate and restructure education to prioritize the holistic development of individuals, including the cultivation of emotional intelligence and soft skills (Oliveira & de Souza, 2022; Puncreobutr, 2016; Salmon, 2019;

Selamat et al., 2017). It has been reported that by embracing a more comprehensive and balanced approach to education, stakeholders and concerned parties can better prepare individuals to thrive in their personal and professional lives, fostering well-rounded and adaptable individuals who can navigate the complexities of the modern world (U.S. Chamber of Commerce Foundation, 2013).

Changing Landscape of Higher Education Worldwide

The rapid economic, technological, and social progress of the 21st century has disrupted tertiary education, prompting extensive research and new strategies to address this vexing issue. Thus, higher education institutions (HEIs) are reevaluating their roles, structures, and purposes to meet the changing demands of the workplace and society (García, 2016). One of the key challenges facing HEIs is the need to develop graduates with the skills and qualifications sought by employers (Chaibate et al., 2020; Fitsilis et al., 2018). The emergence of disruptive technologies, such as virtual reality (VR), augmented reality (AR), blockchain, ecommerce, ridesharing, and 3D printing, has transformed the workplace and created new job opportunities (Flavin, 2012; Meyer, 2010; Pandey & Singh, 2022; Păvăloaia & Necula, 2023). Further, these technologies have rendered some traditional skills obsolete while creating demand for new ones (Vu et al., 2019; Whysall et al., 2019).

## Education 4.0: Meeting the Needs of the Digital Age

HEIs are increasingly embracing new learning models, known as Education 4.0, to meet the needs of learners in the digital age of Industry 4.0, also called the Fourth Industrial Revolution. Education 4.0 is designed to prepare university graduates for the evolving workplace (Chea et al., 2019; Grenčíková et al., 2021; Hariharasudan & Kot, 2018; Keser & Semerci, 2019; Oliveira & de Souza, 2022). The shifting focus of the job market from hard skills to soft skills, due to increasing task automation through advanced technologies, has prompted employers to prioritize candidates with attributes such as communication, leadership, creativity, adaptability, and problem-solving (Wilhelm et al., 2002). In relation to this, universities have been invited to adapt their curricula to align with these workplace needs, with a strong emphasis on developing soft skills, including leadership, communication, a positive work attitude, and teamwork (Chea et al., 2019; Lawrence et al., 2019; Moraes et al., 2022). Lack of collaboration between academia and industry has played a pivotal role in driving this shift (El Messaoudi, 2021).

Statement of the Problem

In Morocco, there exists a significant mismatch between the skills demanded by employers and those acquired by graduates, particularly in the realm of soft skills (Chaibate et al., 2020; Chbani & Jaouane, 2017; El Hamdi et al., 2020; USAID, 2017; Yasin et al., 2015). This soft skills gap is a constant worry and a local concern for stakeholders. Notwithstanding, the soft skills gap remains inadequately addressed by both industry and academia (British Council, 2016; USAID, 2017). The lack of clarity regarding the content, definition, interpretations, and approaches to developing soft skills in the Moroccan context is evident (as depicted in Figure 1), and neither the industry nor academia fully comprehends the extent and nature of the gap. The existing higher education systems in Morocco are falling short in providing students with the requisite skills for workplace success, as soft skills are not adequately incorporated into university curricula (Chbani & Jaouane, 2017; El Hamdi et al., 2020; Llorent-Bedmar, 2014; Tejan & Sabil, 2019; UNIDO, 2019).

Figure 1.
The Research Problem
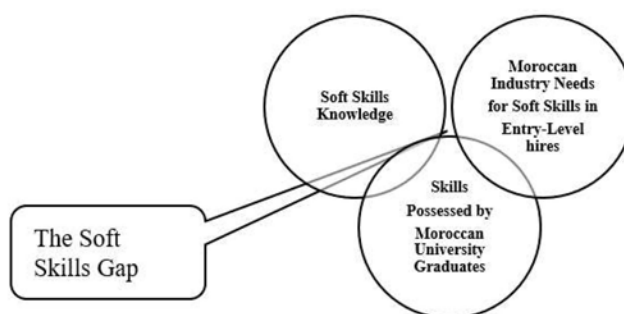
While necessary for professional success, no empirical research has been conducted to examine soft skills development through a blended learning model in the Moroccan context. Previous research on soft skills development in Moroccan tertiary

education has primarily relied on local surveys, cross-sectional studies, and descriptive research. Longitudinal studies, mixed methods studies, and multiphase mixed methods studies are notably absent. In fact, there is a dearth of research investigating the consequences of the soft skills gap, the complexities involved in developing soft skills, the situational factors influencing their development, and the potential of blended learning models to enhance soft skills among undergraduate university students. Consequently, there are many gaps in the literature that need to be filled to better understand the research problem, which is the soft skills gap in the Moroccan context as shown in Figure 2.

Figure 2.
The Soft Skills Research Gap

In response, compelled by solid evidence on the efficacy of blended learning from previous studies (Adams et al., 2009; Albiladi & Alshareef, 2019; Ayob et al., 2023; Mahawan & Langprayoon, 2020; Muxtorjonovna, 2020; Nagura & Arakawa, 2003; Welker & Berardino, 2005), we propose that incorporating soft skills into higher education through a blended learning model can help to bridge this gap. Drawing from contemporary research studies, blended learning has been lauded as an innovative solution, characterized by its distinctive approach that allows educators to seamlessly blend conventional in-person teaching with online learning. This not only grants learners flexibility and convenience but also fosters opportunities for meaningful interaction with both instructors and peers (Graham, 2018). It has been argued that blended learning is particularly well-suited for developing soft skills, such as critical thinking, problem-solving, communication, and collaboration, which are difficult to teach and assess in a traditional classroom setting (Adams et al., 2009; Elbyaly & Elfeky, 2023; Hadiyanto et al., 2020, 2022). Despite the global evidence of the potential of blended learning to develop soft skills, there is a limited body of research on its effectiveness in the Moroccan HEI

context. Initially, this study sets out to address this research gap by investigating the following research questions:

1. What is the impact of blended learning on the development of soft skills in Moroccan HEI students?
2. What are the challenges and opportunities of implementing blended learning in the Moroccan HEI context?

Answering these research questions may help explore ways Moroccan higher education institutions (HEIs) can better prepare students for the modern workplace.

Purpose of the Study

The purpose of this quantitative study is to measure the impact of a soft skills development training administered via a blended learning model on Moroccan undergraduate university students' soft skills level. This study is designed to assess the efficacy of this new approach to soft skills development and gauge the impact it has on students' soft skills levels. Moreover, the study is geared towards identifying any potential factors that may influence the effectiveness of the training.

Research Objectives

This study evaluates the effectiveness of a soft skills development training program delivered through a blended learning model. The study has four objectives:

1. To develop (design) a soft skills development training program.
2. To assess participants' soft skills levels in both the control and experimental groups before the intervention.
3. To deliver the training using a blended learning model for the experimental group but not for the control group.
4. To compare participants' soft skills after the intervention in both the control and experimental groups.

Operationally, the study used a quantitative research design with a randomized controlled trial (RCT) to evaluate the effectiveness of the training. The RCT involves randomly assigning participants to either the experimental group (which received the blended learning training) or the control group (which does not receive the training). Participants'

soft skills were assessed before and after the intervention using a standardized assessment tool.

Significance of the Study

This empirical study evaluates the effectiveness of a blended learning soft skills development training program in cultivating the soft skills of undergraduate university students in Morocco. It aims to provide insights into the intervention impact, ultimately guiding the improvement of future soft skills training and curricula.

Research Questions and Hypotheses

This study assesses the effectiveness of a blended learning soft skills development training program for Moroccan undergraduate university students. The central research question is: Do Moroccan undergraduate university students' soft skills development levels significantly increase over time via a blended learning model?

Four guiding research questions were used to address the central research question:

RQ1. Is there a significant difference in the average soft skills level between the experimental and control groups prior to the intervention?

RQ2. Do the soft skills levels of the experimental group significantly change when comparing pretest and posttest mean scores after the training program was applied?

RQ3. Are the mean scores of the control group's soft skills level before and after the intervention significantly different?

RQ4. Are there statistically significant differences in the soft skills levels of the experimental and control groups after the intervention was implemented?

The following hypotheses were tested:

H1: The experimental and control groups' soft skills level pretest mean scores will significantly differ prior to the training intervention.

H2: The experimental group's soft skills level pretest and posttest mean scores will significantly differ following the training intervention.

H3: The control group's soft skills level pretest and posttest mean scores will significantly differ following the training intervention.

H4: The experimental and control groups' soft skills level posttest mean scores will significantly differ following the training intervention.

LITERATURE REVIEW

Based on solid evidence, Industry 4.0 is transforming the world of work, and soft skills have become increasingly important for workers to succeed in this new environment (Gubán & Kovács, 2017; Kucharčíková et al., 2021; Oztemel & Gursev, 2020; Singh et al., 2022; Tvaronaviciene & Burinskas, 2020; Weber, 2016). Soft skills are personal attributes that enable individuals to interact effectively and harmoniously with other people (Cimatti, 2016; Heckman & Kautz, 2012; Ourrache, 2022; Singh Dubey et al., 2022; Tripathy, 2020; Tulgan, 2015, 2016; Vu et al., 2019; Wellington, 2005; Wilhelm et al., 2002). They are essential for building relationships, communicating effectively, and solving problems collaboratively (Majid et al., 2012; Majid et al., 2019; Pachauri & Yadav, 2014; Rani & Mangala, 2010; Schulz, 2008; Tem et al., 2020). The rise of Industry 4.0 has led to a demand for new workforce skills, with an emphasis on creativity, problem-solving, communication, and emotional intelligence (Andrews & Higson, 2008; Balcar, 2014; Beardmore, 2019; Goodspeed, 2016; Pappas, 2021; Stewart et al., 2016). While technology is replacing manual labor, some positions still require essential soft skills, such as empathy, critical thinking, and flexibility. Education 4.0 is a new form of teaching-learning that responds to the needs of Industry 4.0 (Butt et al., 2020; Chea et al., 2019; Demartini & Benussi, 2017; Faure et al., 1972; Hariharasudan & Kot, 2018; Moore, 2004; Oliveira & de Souza, 2022; Puncreobutr, 2016; Salmon, 2019; Selamat et al., 2017). It focuses on the development of interpersonal skills such as autonomous learning, creative thinking, problem-solving, critical thinking, communication and collaboration. Previous research (Chaibate et al., 2020; Fitsilis et al., 2018) has shown that the following soft skills are highly valued by organizations of the future: Communication, Collaboration, Problem-solving, Critical Thinking, Creativity, Emotional Intelligence, Adaptability, and Resilience.

On the previous line of reasoning, universities are invited to make a swift shift to Education 4.0 to equip students with the necessary soft skills (Wallner-Drewitz & Wagner, 2016). This can be

done through a variety of methods, such as: (a) integrating soft skills training into the curriculum, (b) providing students with opportunities to develop soft skills through extracurricular activities, and (c) creating a learning environment that encourages collaboration and problem-solving.

One promising approach to soft skills development is the use of blended learning (Graham, 2018; López-Pérez et al., 2011; Muxtorjonovna, 2020; O'Connor et al., 2011; Patmanthara & Hidayat, 2018). Blended learning (Figure 3) combines face-to-face instruction with online learning, and it can be used to deliver soft skills training in a flexible and engaging way.
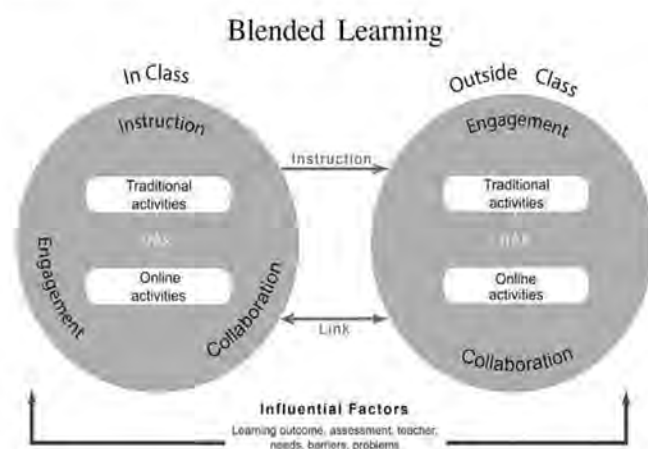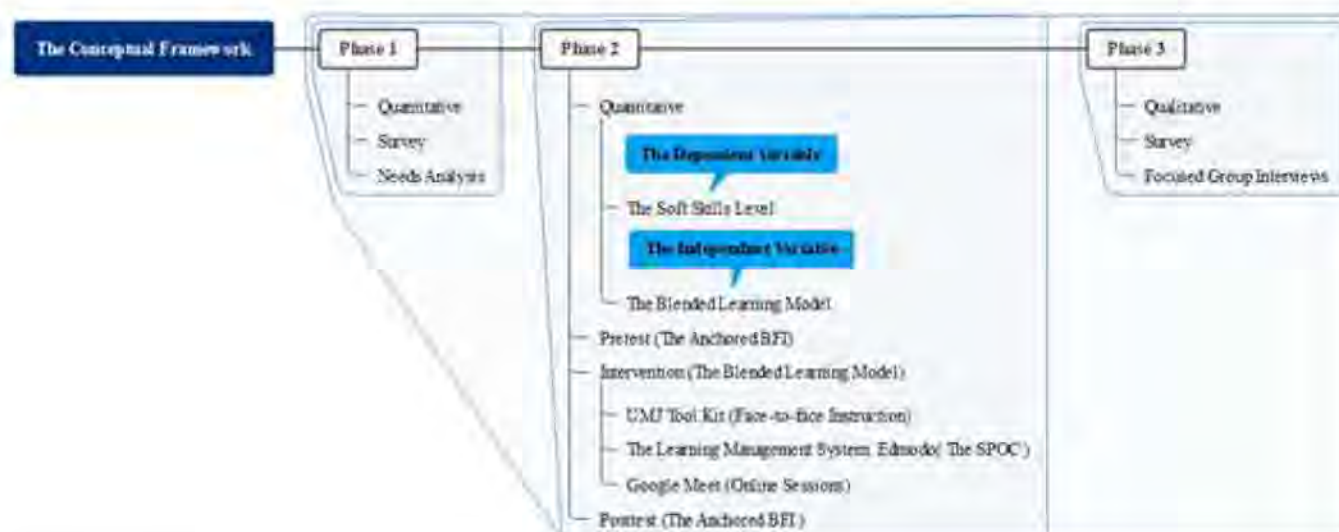
Figure 3.
The Concept of Blended Learning

In brief, soft skills are essential for workers to succeed in the Industry 4.0 era as reported above. Universities can play a vital role in equipping students with these skills by implementing Education 4.0 and using innovative teaching methods such as blended learning. As a gentle reminder, to set the record straight, this study formed the second phase of a multiphase mixed methods study as illustrated in Figure 4.

The treatment was based on the results of Phase 1, a needs analysis involving 170 undergraduate university students (El Messaoudi et al., 2022). The needs analysis identified five factors contributing to soft skills development: the knowledge factor, the impact factor, the agenda factor, the readiness factor, and the preferences factor. Based on the needs analysis, 49% of respondents preferred to develop their soft skills via face-to-face sessions, while 51% preferred to learn online. Therefore, a blended learning model was chosen and developed for Phase 2 of the study (Figure 5).

METHODOLOGY

This study utilized a true experimental design to assess the impact of teaching soft skills through blended learning (experimental group). The design involved random selection, random assignment, and controlled manipulation of the independent variable. It followed a pretest-posttest control group design, where subjects were randomly assigned to treatment and control groups. Pretests and posttests

Figure 4.
The Conceptual Model

Figure 5.
Soft Skills Development Ultimate Decision

I am definitely ready to develop my soft skills ...
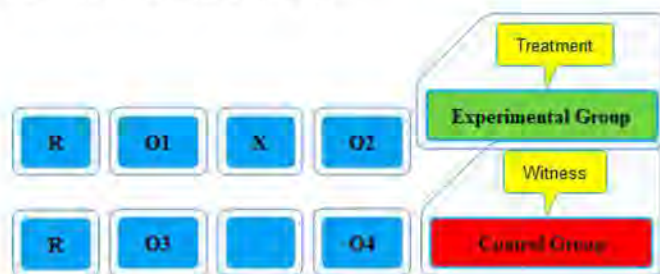

Figure 5. Soft Skills Development Ultimate Decision
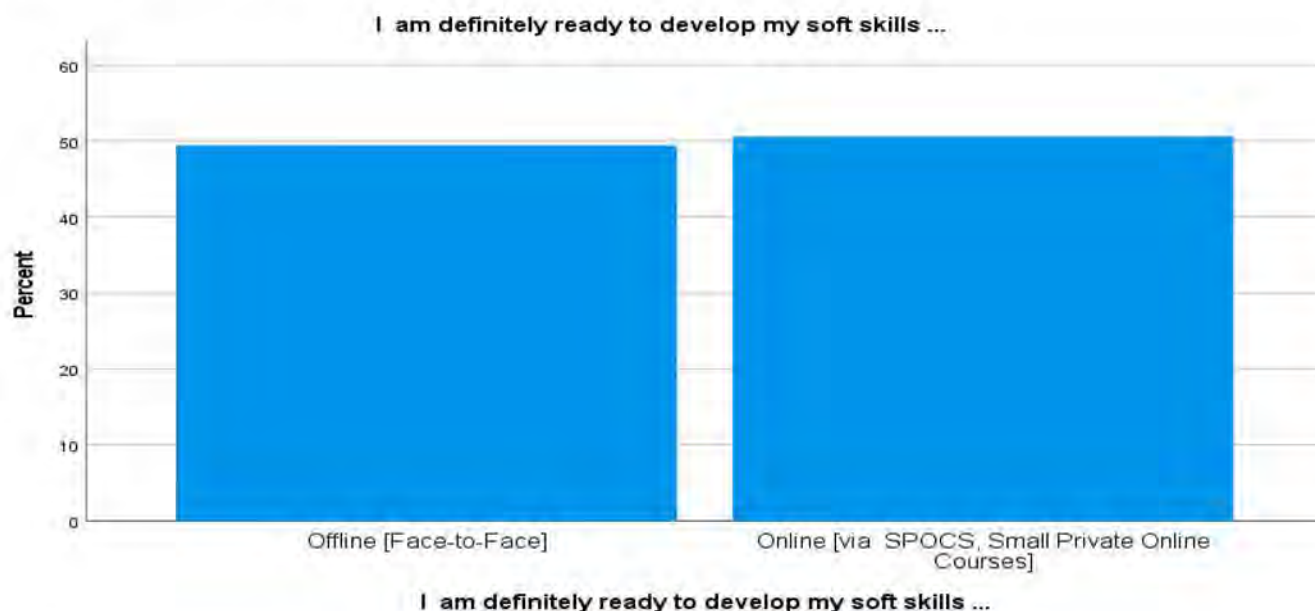
were conducted for both groups using a reliable inventory that covered a wide range of soft skills. This design ensures high internal validity. Figure 6 provides a visual representation of this design.

Figure 6.
Pretest-Posttest Control Group Design

To evaluate the impact of the blended learning model on university students' development of soft skills, a pretest-posttest design was employed. Participants were randomly assigned to either a treatment or control group. The difference in scores between the posttest and pretest was calculated as $E = (O2 - O1) - (O4 - O3)$. The experimental group received the blended learning model for 8 weeks, and the soft skills development level (dependent variable) was measured once under a specific condition. The Anchored BFI was used to assess the dependent variable before and after the treatment period. The experimental design offers several advantages: measuring treatment impact on the experimental group, comparing pretest and posttest scores between experimental and control groups, controlling for external factors, and determining treatment effectiveness across different groups. Rigorous procedures were followed, including strict adherence to eligibility criteria using a protocol, systematic random sampling for participant selection from the target population, data collection through the Anchored Big Five Inventory (BFI), and analysis using descriptive and inferential statistics (Figure 7).

Figure 7.
The Experimental Design
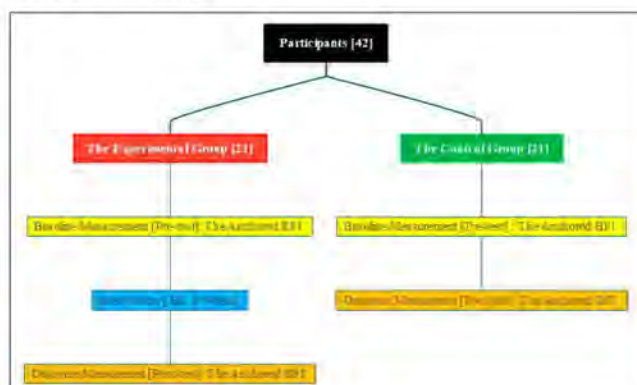
It is important to note that ethical considerations were prioritized to respect participants' rights throughout the study.

Participants, Sampling, and Setting

A systematic random sampling technique was used to select a sample of fourth-semester undergraduate students from a target population of 400. This sample was chosen for participation in soft skills development training via a blended learning model. The population was divided by the required sample size (42) to obtain an appropriate interval size (10). Every 10th element, starting from the 5th, was then randomly chosen from the population list. Participants who were out of reach and those who declined to take part were substituted by randomly selecting from the same list. The sample was composed of 42 participants, which were divided into two groups of 21 each, an experimental group and a control group using the Research Randomizer tool. This selection procedure ensured a fair representation of the population while accounting for potential bias.

In order to control for any extraneous variables, a control group was established, which underwent the same tests as the experimental group but without receiving the treatment [soft skills training via a blended learning model]. The Research Randomizer tool was used to randomly assign participants to either the experimental or control condition. All participants in the experimental group were required to sign a student commitment statement protocol.

RESEARCH INSTRUMENTS

Anchored BFI

Assessing the soft skills of undergraduate students is an intricate endeavor, as it requires a close examination of how these skills are demonstrated in various contexts, while also accounting for the potential of cultural prejudice (Gibb, 2014; Kechagias, 2011; Sparrow, 2017). Consequently, those involved in evaluating the soft skills of young people may gain advantage from using the Anchored BFI approach, which can measure soft skills in a variety of cultural contexts.

RELIABILITY AND VALIDITY

The Anchored BFI is a reliable and valid instrument for assessing personality traits across diverse cultures. Its internal consistency, as measured by Cronbach's alpha, ranges from 0.76 to 0.88 in studies involving diverse populations. This indicates that the items on the scale measure a single underlying construct. For example, Weiss and Roberts (2018) reported Cronbach's alphas of 0.76 to 0.88 for the Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to Experience subscales. Fenton-O'Creevy and Furnham (2020) reported similar findings. The Anchored BFI has also been shown to be reliable over time, with retest reliabilities of approximately 0.85. Its validity is further supported by the use of vignettes and situational judgment tests. Studies in countries such as the United Kingdom, United States, Mexico, and China have shown that the Anchored BFI can be successfully used to assess personality traits in diverse cultural settings. It maintains its psychometric properties even when translated into different languages. The Anchored BFI also demonstrates moderate to high convergent validity with other personality assessment tools. It has been used to examine relationships between personality traits and variables such as career satisfaction, job performance, and job stress (Gibb, 2014; Kechagias, 2011; Scheerens et al., 2020; Sparrow, 2017; Tulgan, 2015).

DATA COLLECTION

Pretest

On March 16, 2022, the Anchored Big Five Inventory was administered to participants at the Faculty of Art and Human Sciences, University Moulay Ismail (UMI) in Meknes, Morocco. The pretest involving the Anchored BFI was conducted to ascertain the initial proficiency in soft skills within both groups and to establish a baseline for evaluating the efficacy of a soft skills development training program. It encompassed diverse evaluation methods, including multiple-choice and open-ended questions, vignettes, and scenarios, designed to gauge participants' comprehension and practical application of soft skills. The primary objective of the pretest was to provide an objective measure of participants' grasp of fundamental soft skill principles and their capacity to apply these principles in real-world scenarios. We aimed to quantify the extent of improvement in soft skills development between the two groups following the completion of the hybrid program.
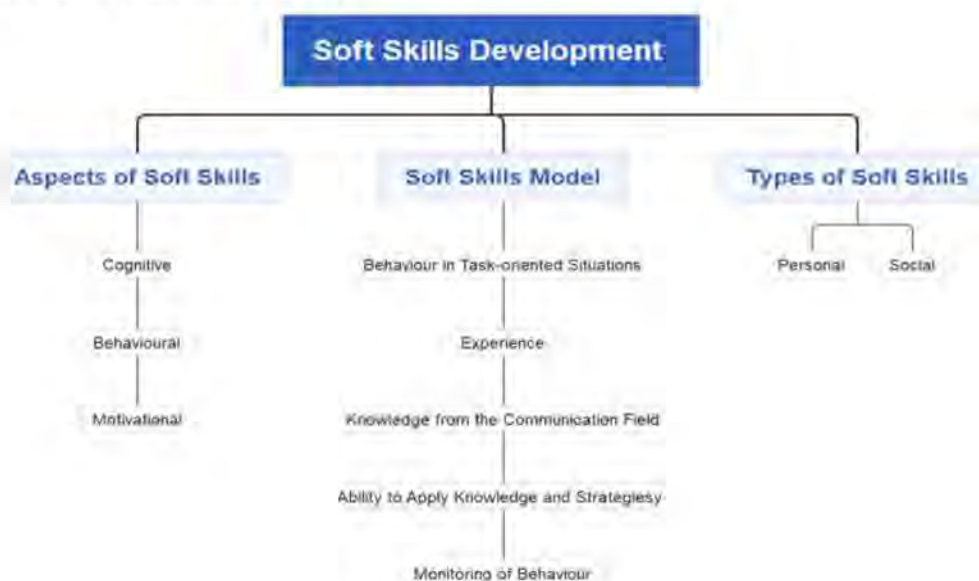
Soft Skills Development Conceptual Model

Fastnacht (2006) devised an informed approach for a soft skills development model (Figure 8). This approach is regarded as one of the most appropriate blueprints for soft skills development for several reasons. First, it is a comprehensive model that addresses all aspects of soft skills development, including behavioral, cognitive, and motivational skills. Second, it is a blended learning model, which integrates the best of both face-to-face and online learning to provide a flexible and engaging learning experience. Third, the model is based on sound theoretical foundations, drawing from psychology, sociology, and education. Fourth, the model has been shown to be effective in previous studies. In a word, Fastnacht's methodology is a well-designed and effective soft skills development model that was the most appropriate choice for this study.

SOFT SKILLS DEVELOPMENT TRAINING VIA A BLENDED LEARNING MODEL

The aim of the soft skills development training, conducted through a blended learning approach, was to provide students with vital soft skills essential for lifelong learning, enabling them to take ownership of their educational journey. The primary goal was to foster an environment that nurtures increased autonomy, confidence, and proficiency in various areas such as self-management, critical thinking, communication, academic debate, group work, and peer interaction. The course structure drew upon Fastnacht's (2006) model of soft skills development, focusing on eight themes including the Universe of Soft Skills, Communication Skills, Conflict Resolution Skills, Critical Thinking Skills, Positive Attitude Skills, Stress Management Skills, Teamwork Skills, and Work Ethics Skills. In essence, the blended learning soft skills development training was designed to empower undergraduate students to become effective and independent lifelong learners.

OPERATIONALIZATION OF THE BLENDED LEARNING MODEL

The soft skills development training was operationalized by breaking down and analyzing each element, delineated above, to make it measurable. This allowed for the collection of systematic data on challenging-to-measure processes and the measurement of the course's success using indicators such as participants' proficiency levels. The hybrid course was evaluated based on participants' understanding and application of the learned skills, with data being collected and analyzed to gain a comprehensive understanding of the training course. The soft

Figure 9.
The Operationalization of the Soft Skills Development Training Course
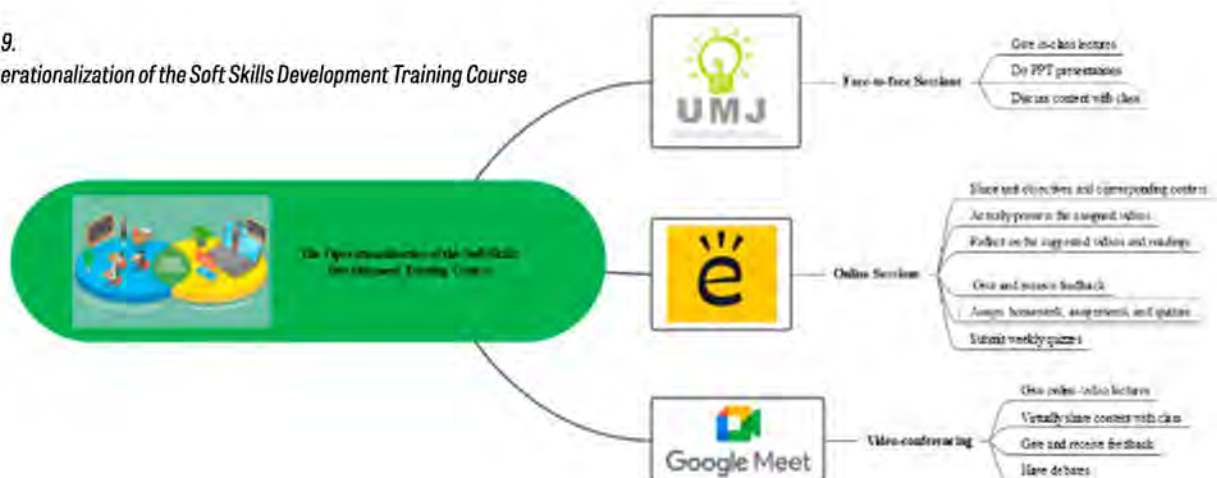
skills development intervention provided the treatment group with a multifaceted learning experience. This was achieved through a combination of in-class sessions, online modules, and out-of-class discussions. Participants spent 2 hours in in-class sessions, during which they explored soft skills development content on the Understanding My Journey platform. This was followed by 2 hours of online learning through the SPOC (Small Private Online Course) titled Soft Skills Development, which was created by the course facilitator. Finally, to foster active engagement and discussion, participants spent another 1.5 to 2 hours in out-of-class sessions using Google to deliberate on issues and debate topics related to the significance of soft skills in Moroccan higher education. Figure 9 visually represents the operationalization process, including program activities, outputs, outcomes, and success indicators.

Understanding My Journey (UMJ) The course utilized the Understanding My Journey (UMJ) toolkit, a renowned soft skills development resource for youth developed through a European project. The UMJ manual served as an assessment and development tool for the experimental group, focusing on self-awareness, self-efficacy, and various skills like communication, problem-solving, critical thinking, and decision-making. Individualized curriculum plans were created based on participants' soft skills assessment using the UMJ manual. We provided feedback and support to assist participants throughout the soft skills training.

Soft skills development through a learning management system (Edmodo). The Edmodo Learning Management System delivered a Soft Skills Development course to university students, with the experimental group accessing the platform through a unique class code. The course comprised eight units offering multidisciplinary and linguistic understandings of soft skills, including tasks, conversations, debates, and video activities for practice. The instructor designed a structured

Figure 10.
The Instructor's Edmodo Platform

course with clear objectives, activities, and assessment criteria, utilizing various teaching strategies like simulations, problem-solving tasks, peer learning, and reflective activities. Continuous feedback and support from the instructor ensured consistent progress in learners' soft skills development.

Google Meet. The course was conducted via Google Meet, creating a virtual classroom environment. Participants received codes or links to join the meeting rooms through email, text message, or other platforms. The instructor utilized video, audio, and chat features, sharing documents, images, and videos with participants. Breakout rooms were used for small group tasks and activities, and sample Google Meet invitation links were attached.

POSTTEST

The study utilized the same measurement tool for both pretest and posttest, particularly advantageous for language and content-based areas. This consistency allowed accurate assessment of participants' understanding of the topics. The tests involved anchoring vignettes and situational judgments with identical wording, ensuring that both groups were evaluated on the same material. This rigorous alignment minimized any potential influence of different tests or materials on the observed effects of the intervention.

Data Analysis

Quantitative data were collected and analyzed using appropriate statistical methods after checking the assumptions of parametric tests and hypothesis testing, including independent samples *t*-tests and paired samples *t*-tests. These tests were used to compare mean scores and determine significant differences between the two samples. Posttest intervention analysis was conducted to evaluate the effectiveness of the intervention by comparing pre- and posttest mean scores. Descriptive and inferential statistics, primarily the *t*-test, were utilized to assess the efficacy of the intervention and provide insights into the achievement of desired outcomes (the impact).

RESULTS

Soft Skills Development Level Comparison of Control and Experimental Groups before the Intervention

We examined and compared the development of soft skills between the control and experimental groups before introducing the blended learning model. The results from Table 1 revealed that the average scores on the pretest were similar for both groups. The experimental group had an average score of 2.463 (SD = 0.005) with a range of 0.10, while the control group had an average score of 2.466 (SD = 0.007) with a range of 0.14. The lowest and highest scores for the experimental group were 2.40 and 2.51, respectively, while for the control group they were 2.38 and 2.51. The average scores of the pretest show that both the control and experimental groups had average levels of soft skills, and the standard deviations were exceedingly small. These results indicate that the scores of both groups belonged to homogeneous groups, as shown in Table 1.

In order to assess the statistical significance of the minor disparity in the mean scores of the experimental and control groups during the pretest, an independent samples *t*-test was performed following an evaluation of data normality and homogeneity of variance. The objective of this test was to ascertain whether the observed difference

Table 1.
Descriptives of Control and Experimental Group SSL Pretest Mean Score

SSL_Pretest

Participant	Mean	N	Std. Deviation	Std. Error of Mean	Sum	Minimum	Maximum	Range	Variance	Kurtosis	Std. Error of Kurtosis	Skewness	Std. Error of Skewness
Control Group	2.4666	21	0.03459	0.00755	51.8	2.38	2.51	0.14	0.001	0.44	0.972	-0.679	0.501
Experimental Group	2.4636	21	0.02575	0.00562	51.74	2.4	2.51	.1	0.001	0.429	0.972	-0.515	0.501
Total	2.4651	42	0.03015	0.00465	103.53	2.38	2.51	0.14	0.001	0.447	0.972	-0.58	0.355

Table 2.
Independent Samples T-test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference		
								Std. Error Difference	Lower	Upper
SSL Pretest	Equal variances assumed	2.026	162	0.313	40	0.756	0.00294	0.00941	-0.01607	0.02196
	Equal variances not assumed			0.313	36.962	0.756	0.00294	0.00941	-0.01612	0.02201

in the pretest mean scores between the two groups is attributable to chance or error.

Independent sample t-test

After ensuring that the assumptions of normality distribution and homogeneity of variance were satisfied, an independent samples *t*-test was conducted to investigate whether there was a significant difference between the pretest mean scores of both the control and experimental groups. The experimental group participants showed lower soft skills level scores ($M = 2.463$, $SD = .25$) than those in the control group ($M = 2.466$, $SD = .43$). The results of the independent samples *t*-test indicated that this difference was not statistically significant, $t(36.96) = -.31$, $p = .75$.

The results indicate that the soft skills levels of the two groups were comparable, providing support for the null hypothesis that stated there was no significant difference in the soft skills levels between the experimental and control groups before the intervention. Table 2 presents evidence that we diligently conducted the random selection and random assignment procedures.

Impact of Training Intervention on Experimental Group's Soft Skills Level: A Comparison of Pre- and Posttest Mean Scores

We examined the effectiveness of the blended learning model in improving the development of soft skills within the experimental group. The pretest and posttest scores were analyzed to assess whether the training had a substantial impact on the group's soft skills levels. The descriptive analysis of the data, as shown in Table 3, revealed that there was no significant increase in the mean score

of soft skills level for the experimental group after the intervention.

A paired samples *t*-test was performed to assess the difference between the pre- and posttest soft skills levels of the experimental group, using a significance level of 0.05. Before conducting the repeated measures *t*-test, it was crucial to ensure the normality and homogeneity of the samples. To evaluate the effectiveness of the blended learning soft skills development training course, the pretest and posttest mean scores for SSL were subjected to a repeated measures *t*-test. The results indicated a statistically significant difference between the two means. The posttest mean score ($M = 2.51$, $SD = 0.02$) was significantly higher than the pretest mean score ($M = 2.46$, $SD = 0.03$), $t(20) = -5.19$, $p = 0.00$, with a 95% confidence interval of [-0.074, -0.031]. These results suggest that the training had a positive impact on improving soft skills, albeit to a small extent. Additional details can be found in Table 4.

Table 3.
Means Comparison of Experimental Group Pretest and Posttest Scores

Paired Samples Statistics*

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	SSL Posttest	2.5197	21	2323	507
	SSL Pretest	2.4636	21	2575	562

*Participant=Experimental Group

Table 4.
Repeated Measures T-test of the Experimental
Group SLL Pretest and Posttest Mean Scores

Paired Samples Test*

Paired Differences

		Mean	Std. Deviation	Std. Error Mean Lower	95% Confidence Interval of the Difference		wt	df	Sig. (2 tailed)
					Upper				
Pair 1	SSL Pretest - SSL Posttest	0.05612	0.03128	0.00683	0.04188	0.07036	8.221	20	<.001

*Participant=Experimental Group

Hence, the null hypothesis was rejected, indicating a significant difference between the pretest and posttest scores. The alternative hypothesis was confirmed, suggesting that the training course influenced the participants' soft skills. Notwithstanding, it is important to report not only the statistical significance of the *t*-test results, but also the size of the treatment effect. Recent research has highlighted the shortcomings of relying solely on significance tests to summarize results (Krueger, 2001; Schmidt & Hunter, 1997). When reporting statistical analyses, it is crucial to consider not only the statistical significance but also the size of the treatment effect. Relying solely on statistical significance tests can be inadequate in interpreting study results (Gignac & Szodorai, 2016). To accurately measure the difference between groups, researchers commonly use effect size, which quantifies the magnitude of the difference between treatment means. Cohen's d, developed by Jacob Cohen, is a widely recognized method for calculating effect size. This approach involves dividing the difference between sample means by the standard deviation. A small effect size is typically indicated by 0.2, a moderate effect

size by 0.5, and a large effect size by 0.8, as suggested by Gignac and Szodorai (2016) and Selya et al. (2012). In the present study, the estimated Cohen's d was 0.2, indicating a small effect size [Cohen's d = (2.51 - 2.46) / 0.2 = 0.2].

The true experimental study demonstrated a statistically limited significant impact of participating in the soft skills development course on the experimental group's soft skills level. Cohen's d was used to calculate the effect size, resulting in a value of 0.2. Despite the small effect size, it is important to consider this result in the interpretation of the findings, considering the study's small sample sizes.

Difference between Pretest and Posttest Mean Scores of Control Group's Soft Skills Level Following the Intervention

In experimental designs, including a control group is essential to ensure the validity of the research findings. By comparing the outcomes of the experimental group with those of the control group, researchers can discern whether observed changes in the experimental group are a result of the independent variables manipulated by the researcher or any external factors. To evaluate this,

Table 5.
Repeated Measures T-test of the Control Group
SLL Pretest and Posttest Mean Scores

Paired Samples Test*

Paired Differences

		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2 tailed)
					Lower	Upper			
Pair 1	SSL Pretest - SSL Posttest	0.04897	0.04837	0.01055	0.02695	0.07099	4.64	20	<.001

*Participant=Control Group

Table 6.
Means Comparison of Control and Experimental Group Posttest Scores

Group Statistics

	Participant	N	Mean	Std. Deviation	Std. Error of Mean
SSL_Posttest	Control Group	21	2.5155	0.02879	0.0628
	Experimental Group	21	2.5197	0.02323	0.00507

a repeated measures *t*-test was employed to compare the mean scores of the control group before and after the intervention (Table 5).

The results from Table 5 demonstrated a somewhat significant difference between the control group's mean scores before (M = 2.46, SD = .034) and after (M = 2.51, SD = .028) the intervention, $t(20)$ = 4.64, p = .001, with a 95% confidence interval of [.070, .026]. These findings suggest that the null hypothesis, stating that there is no significant difference between the control group's pretest and posttest scores, is incorrect. Therefore, the alternative hypothesis, proposing that the manipulation of independent variables has led to a significant change in the control group's posttest scores, is supported.

Comparing the Posttest Mean Scores of Experimental and Control Group Soft Skills Level Following Intervention

To evaluate the effectiveness of the treatment, it is crucial to compare the posttest scores

of the experimental and control groups in terms of their soft skills levels. However, the results indicated no significant difference in mean scores between the two groups in both the pre- and posttest. According to Table 6, there was no significant advantage for the experimental group over the control group in the posttest, as both groups achieved similar mean scores (experimental group: 2.519, control group: 2.515). The standard deviations were also reasonably comparable between the groups. These findings suggest that the posttest mean score of the experimental group did not significantly differ from that of the control group.

In order to compare the mean scores between the experimental and control groups, an independent samples *t*-test was conducted, and since the normality and homogeneity of variance were previously confirmed to be satisfactory, there was no need to reevaluate them. The descriptive statistics indicate that the experimental and control groups scored similarly on the soft skills posttest. However, to determine the significance of this difference, an independent-samples *t*-test was performed, and the results are presented in Table 7.

The posttest mean scores of the control group (M = 2.515, SD = .028) and the experimental group (M = 2.519, SD = .023) did not exhibit a statistically significant difference. The mean difference was −0.04, with a 95% confidence interval of [−0.020, 0.01]. The *t*-value was −0.52, and the *p*-value was .60. Consequently, the null hypothesis could not be

Table 7.
Independent T-test of SLL Posttest Mean Scores

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error of Difference	Lower	Upper
SSL_Posttest	Equal variances assumed	0.999	0.324	-0.521	40	0.605	-0.00421	0.00807	-0.02052	0.01211
	Equal variances not assumed			21	-0.521	38.292	0.605	-0.00421	0.00807	-0.02055	0.01213

rejected. The study did not find a significant difference between the experimental and control groups regarding their soft skills level in the posttest mean scores. The effect size, measured by Cohen's d, was 0.01, indicating a small effect size. Therefore, it was concluded that the observed differences in the posttest mean scores between the experimental and control groups cannot be confidently attributed to the soft skills development training (Cohen's d = (2.515 − 2.519) / 0.25 = 0.01).

DISCUSSION

In this study, a soft skills development intervention was conducted in a Moroccan open access tertiary educational institution, guided by Fastnacht's model (Fastnacht, 2006, p. 111). The model provided a comprehensive framework consisting of eight components, themes, and linked elements that formed the basis for the training program. Using this pedagogical framework, an eight-unit training program was created, with a focus on enhancing soft skills. The training was delivered through a low-impact blended learning model, combining online and face-to-face instruction to establish a flexible and interactive learning environment. The outcomes of the intervention and its impact on soft skills development will be discussed in the following sections in line with the research questions.

Comparing the Control and Experimental Groups SSL Pretest Mean Scores

Treatment manipulation in experimental research is crucial for establishing cause-and-effect relationships. This study assessed treatment manipulation through a pretest, which showed no significant differences between the control and experimental groups' soft skills levels. Random assignment and similarity in group characteristics supported appropriate treatment manipulation, consistent with previous research guidelines. These results are consistent with previous studies, suggesting that the manipulation of the treatment adhered to pretest/posttest designs for social science experiments (Bonate, 2000; Jeffreys, 2002; Lana, 2009; Swain & Gale, 2014).

Comparing the Experimental Group SSL Pretest and Posttest Mean Scores

The soft skills development training using a blended learning model did not yield significant improvements in the experimental group's posttest scores compared to their pretest scores. The results showed no statistically significant differences, confirming the null hypothesis and disproving the alternative hypothesis. The effect size was small, indicating limited practical significance. These results suggest that the intervention had minimal impact on improving participants' soft skills. This pattern of unexpected results does not match with previous research (Agustiani et al., 2021; Albiladi & Alshareef, 2019; Diana et al., 2022; Durlak et al., 2011; Graham, 2013, 2018; Mahawan & Langprayoon, 2020; Patmanthara & Hidayat, 2018; Swain & Gale, 2014). Further empirical evidence is needed to fully assess the intervention effectiveness.

Comparing the Control Group SLL Pretest and Posttest Mean Scores

To evaluate Hypothesis 3, the control group also underwent a posttest to measure their soft skills levels under the same conditions as the experimental group. The aim was to examine whether significant differences existed between the mean scores of the control and experimental groups after 8 weeks. Surprisingly, the statistical analysis revealed a significant difference between the two groups. A repeated measures t-test was conducted to compare the control group's pretest ($M = 2.463$, $SD = .025$) and posttest mean scores ($M = 2.51$, $SD = .028$), resulting in a statistically significant difference of $M = -0.05$, 95% CI [−0.072, −0.031], $t(20) = -5.22$, $p = .00$. Consequently, the null hypothesis, which posited no significant difference between the mean scores of the control and experimental groups' soft skills level before and after the training, was rejected (Hypothesis 3), while the alternative hypothesis was supported. It is important to acknowledge that certain extraneous variables may have influenced these results. Unaccounted external factors during the treatment period could have contributed to this outcome. However, the control group's soft skills level only improved by 0.05%, indicating that not all results could be attributed solely to the training program.

One plausible explanation for these unexpected findings is the contamination effect in experimental designs implemented within educational institutions (Rhoads, 2011). Contamination occurs when an intervention administered to an experimental group unintentionally affects the

control group, making them appear more similar than they are. This can mask or diminish the association between the intervention and the outcome. The soft skills development training falls into the same category as interventions aimed at enhancing school leadership capacity (Harris & Lambert, 2003), making it vulnerable to contamination. Although some participants from the experimental group denied sharing course contents and login codes with the control group, three students admitted to sharing the soft skills development course materials, training booklet, LMS login code, and links to online sessions via Google Meet with others. These results are disappointing, and further research is required to investigate contamination and explore prevention strategies. Conducting one-on-one interviews with participants could be beneficial in understanding the issue.

Comparing the Control and Experimental Groups SLL Posttest Mean Scores

The results of the present study regarding soft skills development training through a blended learning model diverge from previous research. Multiple studies have demonstrated significant improvements in various components of soft skills following training interventions, including management students, medical students' communication skills, and self-directed learning and communication skills in diverse classroom settings. However, the results of the current study do not align with recent research (Hadiyanto et al., 2021; Hadiyanto et al., 2022; Mahawan & Langprayoon, 2020; Patmanthara & Hidayat, 2018). Similarly, the results contradict a previous study conducted by Hadiyanto et al. (2020). Furthermore, the present experiment's results do not receive clear support from the available literature and differ from the earlier observation by Jagannathan et al. (2019). In contrast to these studies, the current research did not find a significant improvement in the experimental group's soft skills compared to the control group. These inconsistent results emphasize the need for further investigation to comprehensively understand the efficacy of different training approaches in the development of soft skills. The study provides additional evidence that contradicts the notion that these hybrid programs are universally effective, as demonstrated in Table 8. The research hypotheses were summarized based on the

verification outcomes. Hypotheses 1, 2, and 4 were not supported, while Hypothesis 3 was supported.

Table 8.
Hypothesis Testing

Research Hypothesis	Verification Outcome 0: Falsified 1: Supported
The experimental and the control group soft skills level pretest mean scores will significantly differ prior to the training intervention.	0
The soft skills level pretest and posttest mean scores of the experimental group will significantly differ following the training intervention.	0
The soft skills level pretest and posttest mean scores of the control group will significantly differ following the training intervention.	1
The experimental and the control group soft skills posttest mean scores will significantly differ following the training intervention.	0

In harmony with the empirical evidence provided, which goes against the odds, it is of utmost importance to consider the fact that the soft skills development treatment can vary culturally, and what is considered to be appropriate soft skills behavior in one culture may not be appropriate in another. Therefore, it is important to ensure that soft skills development interventions are culturally adapted to the needs of the students in order to be most effective and impactful. In the context of Morocco, it is important to consider the following cultural factors when implementing any soft skills initiatives:

a. **Hierarchy and respect:** Moroccan culture is highly hierarchical, and it is important to show respect for elders and authority figures. This can be reflected in the soft skills curriculum by emphasizing the importance of active listening, respectful communication, and teamwork.

b. **Communication style:** Moroccans tend to be indirect communicators, and they may value nonverbal communication over verbal communication. This can be reflected in the

soft skills curriculum by including activities that help students to develop their nonverbal communication skills, such as body language and eye contact.

c. **Collectivism:** Moroccan culture is collectivist, and individuals tend to prioritize the needs of the group over their own needs. This can be reflected in the soft skills curriculum by emphasizing the importance of cooperation, collaboration, and conflict resolution.

In addition to cultural adaptation, it is also important to consider the transferability of soft skills from educational settings to employment settings. As noted in the available literature, soft skills taught in educational settings may not necessarily transfer to other contexts (Campbell, 2017; Laker & Powell, 2011). This is because the workplace is a complex and dynamic environment, and students need to be able to adapt their soft skills to different situations. One way to improve the transferability of soft skills is to provide students with opportunities to practice their skills in real-world contexts (Chiaburu et al., 2010). This can be done through internships, simulations, and role-playing exercises. Again, it is important to help students to develop their metacognitive skills, which are the skills that allow them to reflect on their own learning and transfer their skills to new situations (Andrews & Higson, 2008; Iorio et al., 2022; Isaacs, 2016; Laker & Powell, 2011). If these factors are taken into account, educators can develop more effective initiatives and programs that will help students develop the soft skills they need to succeed in the workplace.

CONCLUSION

This quantitative study examined the impact of a blended learning model on the soft skills of 42 undergraduate university students in Morocco who were randomly assigned to a control group and an experimental group. The intervention utilized various resources and platforms to deliver soft skills training. Despite the combination of offline and online activities, the experimental group showed negligible improvement in soft skills compared to the control group, as indicated by mean scores before and after the intervention. The study hypotheses were evaluated, with Hypotheses 1, 2, and 4 not being supported, while Hypothesis 3 was supported. All in all, the soft skills training program did not have a significant impact on the experimental group's soft skills level compared to the control group. Additional research is required to identify effective strategies for improving soft skills, and educators and policymakers should critically evaluate educational interventions before implementing them.

Implications

Based on the study results, some implications for policymakers have been suggested. Solid evidence suggests that the soft skills gap is a real issue and is widening due to a disconnect between the university and the corporate world. Therefore, it is essential for policymakers to take action to bridge this gap. Embedding soft skills into the curriculum is one way of doing this, as this will increase the employability of new graduates and ultimately ensure job security in an increasingly automated and AI-driven world. Collaboration between the education and business sectors is also vital to close this gap. However, most importantly, political will is needed in order to implement these measures. In this regard, the Ministry of Higher Education and Training and the Ministry of Industry in Morocco should work together to develop national soft skills strategies and up-skilling and capacity-building initiatives. Last but not least, here are some distinct implications for course design based on the results of the study:

1. **Embed soft skills into the curriculum.** This can be done by explicitly teaching soft skills in specific courses, or by integrating them into all courses throughout the curriculum. For example, students could be required to complete assignments that involve teamwork, problem-solving, communication, and critical thinking.

2. **Provide opportunities for students to develop soft skills through extracurricular activities.** This could include student clubs and organizations, volunteer work, and internships. Extracurricular activities can provide students with a chance to practice soft skills in a real-world setting.

3. **Collaborate with the business sector.** Businesses can provide input on the soft skills that are most important to them, and they can also partner with universities to offer internships and other opportunities for students to develop these skills.

4. **Create a culture of soft skills development.** This means making soft skills development a priority for all faculty and staff members. It also means providing students with opportunities to reflect on their soft skills development and get feedback on their progress. Ultimately, this will create a more employable workforce and ensure job security for today's Moroccan university students.

Recommendations

The current study put forward several recommendations for stakeholders to address the soft skills gap. It is essential to officially acknowledge the soft skills gap, recognize the importance of soft skills, and work to create stronger links between businesses and universities. To effectively address the soft skills gap, stakeholders should identify the key soft skills needed, integrate them into the curriculum, provide soft skills training programs for in-service tutors and university professors, carefully prioritize blended learning models for soft skills development, create career centers and train employability advisors, make international exchange programs more accessible, and improve access to high-quality soft skills development resources (both digital and nondigital). These recommendations can help stakeholders create effective strategies to bridge the soft skills gap, leading to improved outcomes for students, businesses, and society.

Limitations

Although this research has invested a great deal of time and effort to ensure its reliability and validity, there are still limitations to be taken into consideration. The sample size is relatively small and may not be a complete and accurate representation of the target population of undergraduate university students from the Department of English Studies. Furthermore, the measurement adopted for the true experiment was limited by the Anchored BFI soft skills measurement tool. Furthermore, the blended learning model adopted in this study should not be considered the definitive model for embedding soft skills, and the type of learning used in the second phase had some shortcomings. Despite these limitations, the value of this scholarly work still commands respect and recognition.

Future Research Directions

This study has raised several important questions that warrant further investigation. First, it is important to note that this study examined only the soft skills gap and the effects of a soft skills development intervention in undergraduate university students. Future research should explore whether a soft skills gap exists in other departments and universities, as well as at other educational levels (e.g., secondary school, graduate school). Second, this study used a blended learning model, which combines online and offline sessions to help participants develop their soft skills. Future research should investigate the effects of developing soft skills through a face-to-face or an elearning model, as well as the effects of different combinations of online and offline learning. Third, future research should evaluate the impact of different soft skills initiatives and interventions. This could be done through experiments, quasi-experiments, or mixed-methods studies. Moreover, future studies could provide more concrete evidence of the long-term impact of soft skills on undergraduate students' personalities and mindsets and their academic and career success. Fourth, it is important to gain a deeper understanding of the relationship between soft skills and academic performance in the Moroccan context. Future research could investigate how soft skills such as communication, teamwork, and problem-solving relate to students' grades, course completion rates, and graduation rates. Fifth, the effectiveness of soft skills interventions in the workplace should be further studied. This could be done through longitudinal studies that track the progress of graduates after they enter the workforce. Finally, future research should consider the use of new and different soft skills measurement tools. The Anchored BFI soft skills measurement tool used in this study is a valuable tool, but it is important to develop and validate additional tools that are specific to the Moroccan context. In a nutshell, future research should consider how other factors, such as age, gender, subject of study, and location, may influence the development and transfer of soft skills.

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