

Students' Satisfaction with Fully Online Learning during Emergency Remote Teaching

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ABSTRACT

This study examines students' satisfaction with fully online learning during the emergency remote teaching period necessitated by the COVID-19 pandemic in Mexican higher education institutions. The sudden transition from face-to-face to online instruction presented unprecedented challenges for educational systems worldwide, with particular complexities in developing country contexts characterized by infrastructure limitations and digital divides. Through a comprehensive mixed-methods investigation involving 1,847 undergraduate students across 15 Mexican universities representing diverse institutional types and geographic regions, this research explores multiple dimensions of student satisfaction including instructional quality, technological infrastructure, interaction and engagement, assessment practices, and overall learning experience. Findings reveal that Mexican students expressed moderate overall satisfaction with emergency remote teaching, with significant variation across different aspects of the online learning experience and substantial differences based on socioeconomic status, prior technology access, academic discipline, and institutional resources. Students identified instructor pedagogical adaptation, reliable internet connectivity, opportunities for interaction, and institutional support services as critical factors influencing satisfaction. However, substantial proportions of students reported challenges including inadequate technology access, limited interaction with peers and instructors, assessment concerns, and difficulties maintaining motivation and engagement. The research contributes to

understanding how emergency transitions to online learning affect student experiences in Latin American contexts while offering insights for improving online and hybrid education quality in post-pandemic educational environments.

INTRODUCTION

The COVID-19 pandemic precipitated an unprecedented global disruption to education, forcing institutions worldwide to transition abruptly from traditional face-to-face instruction to fully online delivery modes. This massive shift, often termed emergency remote teaching, occurred with minimal preparation time and required educators, students, and institutions to adapt rapidly to entirely digital learning environments (Muhsyanur, 2022). Unlike carefully planned online education programs developed with appropriate pedagogical design, technological infrastructure, and faculty preparation, emergency remote teaching represented crisis response characterized by improvisation, resource constraints, and learning curve challenges for all stakeholders. The scale and suddenness of this transition created what some scholars have characterized as the world's largest unplanned educational experiment, affecting over 1.6 billion learners globally at the pandemic's peak. According to Hodges et al. (2020), distinguishing emergency remote teaching from quality online education remains crucial for accurately assessing this period's experiences and implications, as the former should not be judged by standards appropriate for the latter but rather understood within its crisis context and constraints.

Mexico's educational system faced particular challenges during the emergency transition to online learning due to significant digital infrastructure gaps and socioeconomic inequalities affecting technology access. Despite being Latin America's second-largest economy, Mexico exhibits substantial disparities in internet connectivity, computer ownership, and digital literacy between urban and rural areas and across socioeconomic strata. National statistics prior to the pandemic indicated that approximately 70% of Mexican households had internet access, with dramatic variations between urban areas approaching 80% and rural regions below 50%. Computer ownership showed even larger gaps, with many households relying exclusively on smartphones for internet access. These pre-existing digital divides created immediate challenges when education moved online, as substantial student populations lacked adequate devices, reliable connectivity, or private spaces for studying. According to Lloyd (2020), Latin American countries including Mexico confronted online learning transitions from positions of infrastructural disadvantage compared to higher-income nations, with pandemic responses necessarily adapting to these contextual realities while highlighting long-standing inequities in educational access.

Higher education institutions in Mexico encompassed diverse institutional types including large public universities serving predominantly lower and middle-income students, private universities ranging from elite to accessible institutions, and technological institutes emphasizing applied fields. This institutional diversity influenced emergency remote teaching experiences, as universities varied considerably in their technological infrastructure, faculty preparation for online instruction, student support services, and financial resources for rapid adaptation. Some well-resourced private universities quickly deployed comprehensive online platforms, faculty training programs, and student technology support. Many public universities with larger enrollments and tighter budgets struggled to provide consistent online experiences, often relying on basic tools and facing challenges ensuring all students could participate effectively. Regional variations compounded institutional differences, with schools in major metropolitan areas generally better positioned than those in smaller cities or rural regions. As Bozkurt and Sharma (2020) and (Muhsyanur et al., 2021) observed, the pandemic exacerbated existing educational inequalities, with emergency transitions revealing and widening gaps between advantaged and disadvantaged institutions and student populations.

Student satisfaction represents a critical indicator of educational quality and effectiveness, reflecting learners' subjective evaluations of their educational experiences across multiple dimensions. In online learning contexts, satisfaction encompasses not only instructional quality but also technological functionality, interaction opportunities, sense of community, support services, and overall learning experience. Research consistently demonstrates that student satisfaction correlates with important outcomes including persistence, academic achievement, skill development, and willingness to continue with online learning (Muhsyanur et al., 2022). Dissatisfaction, conversely, associates with higher dropout rates, lower engagement, and negative perceptions of online education's value. Understanding satisfaction during emergency remote teaching provides insights into which elements of online instruction students value most, which challenges most significantly impact their experiences, and how institutions can improve online and hybrid offerings. According to Kuo et al. (2014), student satisfaction in online learning is multidimensional, influenced by learner characteristics, course design, instructor presence, interaction quality, and institutional support, requiring comprehensive assessment across these various domains.

The emergency nature of the pandemic transition created unique circumstances distinguishing this period from typical online learning experiences. Faculty members with little or no prior online teaching experience suddenly needed to redesign courses for digital delivery, often while managing their own pandemic-related challenges and uncertainties. Students lost not only familiar classroom environments but also informal peer interactions, campus resources, and social connections that constitute important dimensions of the college experience. The absence of choice represented another critical distinction, as students who had selected face-to-face programs found themselves in fully online formats without opting for this modality.

Additionally, the broader pandemic context including health concerns, economic disruptions, social isolation, and general uncertainty influenced students' experiences and satisfaction beyond purely educational factors. Aristovnik et al. (2020) emphasized that assessing student experiences during emergency remote teaching requires acknowledging these contextual factors rather than evaluating online learning in isolation from the crisis circumstances shaping all aspects of students' lives.

Theoretical frameworks for understanding online learning satisfaction draw from multiple disciplines including educational psychology, instructional design, and technology acceptance research. The Community of Inquiry framework emphasizes three interdependent presences—teaching, social, and cognitive—as essential for meaningful online learning experiences, with satisfaction related to the quality of these presences and their interactions. Self-determination theory highlights the importance of autonomy, competence, and relatedness for intrinsic motivation and engagement, with online environments needing to support these psychological needs. Technology acceptance models examine how perceived usefulness and ease of use influence technology adoption and satisfaction. Expectancy disconfirmation theory, widely applied in satisfaction research, suggests satisfaction results from comparisons between expected and experienced performance, with positive disconfirmation increasing satisfaction and negative disconfirmation decreasing it. According to Eom and Ashill (2016), integrating these theoretical perspectives provides comprehensive understanding of the complex factors influencing online learning satisfaction, recognizing that satisfaction emerges from interactions among learner characteristics, instructional design, technology functionality, and contextual factors.

Research on online learning in Latin American contexts has grown but remains limited compared to studies in North American, European, and Asian settings. Existing Latin American research documents both similarities to patterns observed internationally and distinctive regional characteristics reflecting cultural, infrastructural, and institutional contexts. Studies have identified particular challenges including limited broadband infrastructure, faculty resistance to online modalities rooted in pedagogical traditions emphasizing personal interaction, institutional cultures prioritizing face-to-face instruction, and policy frameworks inadequately addressing online education quality assurance. However, research has also documented innovative practices, strong student motivation, and creative adaptations to resource constraints. The pandemic-driven emergency transition created both hardships and opportunities for advancing online education in the region. As Expósito and Marsollier (2020) noted in their analysis of Argentine experiences, the crisis accelerated digital transformation that had been progressing slowly, potentially catalyzing lasting changes in how Latin American institutions approach technology-enhanced and online learning despite the difficulties of emergency implementation.

This study addresses several important gaps in understanding student experiences with emergency remote teaching in Mexican higher education. While international research has documented student satisfaction during pandemic online learning, relatively limited investigation has focused specifically on Mexican contexts despite the country's size, importance in Latin American higher education, and distinctive challenges regarding digital equity. The research examines satisfaction across multiple dimensions rather than treating it as a unitary construct, providing nuanced insights into specific aspects of online learning that succeed or struggle in Mexican contexts. The study investigates how satisfaction varies across student characteristics including socioeconomic status, academic discipline, institution type, and prior technology experience, illuminating equity dimensions of emergency online learning. By employing mixed methods combining quantitative surveys with qualitative student accounts, the research captures both breadth of experiences and depth of understanding regarding factors shaping satisfaction. The findings offer practical implications for Mexican higher education institutions as they develop post-pandemic strategies incorporating online and hybrid modalities while addressing lessons learned from emergency remote teaching experiences.

METHODE

This study employed a convergent parallel mixed-methods design to comprehensively examine Mexican students' satisfaction with fully online learning during emergency remote teaching. The quantitative component utilized an online survey distributed through institutional email lists and student organization channels at 15 Mexican universities selected to represent institutional diversity including public and private institutions, various sizes, different geographic regions, and multiple academic orientations. A total of 1,847 undergraduate students completed the survey between November 2020 and February 2021, representing students who had experienced at least one full semester of emergency remote teaching. The survey instrument measured satisfaction across five dimensions: instructional quality and pedagogical practices, technological infrastructure and access, interaction and engagement, assessment and evaluation, and overall satisfaction with the online learning experience. Items employed Likert scales allowing statistical analysis of satisfaction levels and relationships between variables. According to Fowler (2014), online surveys offer efficient means of reaching large student populations while allowing anonymous responses that may elicit more candid assessments than institutionally administered evaluations. Descriptive statistics characterized satisfaction levels across measured dimensions, while inferential analyses including t-tests, ANOVA, and multiple regression examined differences across student groups and factors predicting overall satisfaction.

The qualitative component involved semi-structured interviews with 48 purposively selected students representing diversity in satisfaction levels, academic disciplines, institution types, and socioeconomic backgrounds. Interview protocols

explored students' detailed experiences with online learning, specific examples of satisfying and dissatisfying aspects, comparisons with previous face-to-face experiences, challenges encountered, strategies employed to succeed, and recommendations for improvement. Interviews were conducted via video conferencing platforms, typically lasting 40-60 minutes, and were recorded with permission then transcribed for analysis. Following Saldaña (2016) recommendations for qualitative coding, transcripts were analyzed through multiple cycles of coding to identify themes, patterns, and relationships in students' accounts. Two researchers independently coded subsets of interviews to establish reliability, discussing discrepancies until reaching consensus. Integration of quantitative and qualitative findings occurred during interpretation, with qualitative themes providing explanatory depth for quantitative patterns while survey results suggesting areas for qualitative exploration. According to Creswell and Creswell (2018), mixed-methods approaches prove particularly valuable for educational research where both measuring outcomes and understanding experiences contribute to comprehensive understanding. The study received ethical approval from participating universities' review boards, and all participants provided informed consent with assurances that responses would not affect their academic standing.

RESULT AND DISCUSSION

Overall Satisfaction Levels and Variation Patterns

Quantitative survey results revealed that Mexican students expressed moderate overall satisfaction with emergency remote teaching, with mean satisfaction scores of 3.2 on a five-point scale ($SD = 1.08$). The distribution of responses showed considerable variation, with 18% of students reporting high satisfaction (scores of 4.5-5.0), 31% moderate-high satisfaction (3.5-4.4), 28% moderate satisfaction (2.5-3.4), 16% low satisfaction (1.5-2.4), and 7% very low satisfaction (1.0-1.4). These patterns indicate that while some students adapted successfully to online learning and found the experience acceptable or even positive, substantial proportions experienced dissatisfaction with emergency remote instruction. The moderate mean satisfaction level aligns with international research documenting mixed student responses to pandemic online learning, with emergency conditions creating challenges that affected satisfaction even as some students appreciated certain aspects of online formats. According to Amir et al. (2020), student satisfaction during emergency remote teaching typically showed wider variation than satisfaction with planned online programs, reflecting the diverse circumstances, resources, and adaptability capacities students brought to the unexpected transition.

Satisfaction varied significantly across the five measured dimensions, revealing that students evaluated different aspects of their online learning experiences quite differently. Assessment and evaluation practices received the lowest mean satisfaction scores ($M = 2.7$, $SD = 1.15$), with many students expressing concerns about exam integrity measures, perceived fairness of assessments, and limited feedback on their work. Interaction and engagement opportunities generated the

second-lowest satisfaction ($M = 2.9$, $SD = 1.09$), reflecting students' difficulties connecting with peers and instructors in virtual environments. Technological infrastructure and access satisfaction averaged 3.1 ($SD = 1.23$), with substantial variation reflecting the digital divide affecting Mexican students. Instructional quality showed somewhat higher satisfaction ($M = 3.4$, $SD = 1.02$), suggesting that despite challenges, many instructors made meaningful efforts to adapt their teaching. Importantly, satisfaction scores on all dimensions fell below the midpoint of 3.5 that might represent neutral to positive evaluations, indicating room for improvement across all aspects of online learning delivery. These dimensional differences underscore that student satisfaction represents a multifaceted construct requiring attention to multiple elements rather than assuming satisfaction in one area predicts satisfaction overall.

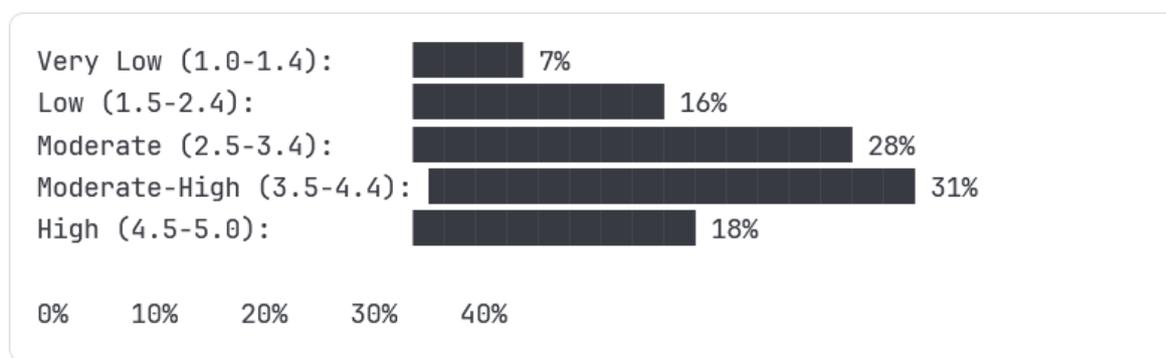


Figure 1. Distribution of Overall Satisfaction Levels

Substantial differences in satisfaction emerged across student demographic and background characteristics, revealing important equity dimensions of emergency online learning experiences. Students from higher socioeconomic backgrounds reported significantly higher satisfaction ($M = 3.6$) compared to lower-income students ($M = 2.8$, $t = 8.94$, $p < 0.001$). This gap primarily reflected differences in technology access, home learning environments, and ability to afford supplemental resources like additional internet data or private tutoring. Students attending well-resourced private universities expressed higher satisfaction ($M = 3.7$) than those at public universities ($M = 3.0$, $t = 7.42$, $p < 0.001$), likely reflecting institutional differences in online infrastructure, faculty preparation, and support services. Academic discipline also influenced satisfaction, with students in fields requiring hands-on laboratory or clinical experiences (e.g., health sciences, engineering) showing lower satisfaction ($M = 2.8$) than those in fields more readily adapted to online formats (e.g., business, humanities) ($M = 3.4$, $F = 11.23$, $p < 0.001$). Prior experience with online learning positively predicted satisfaction, with students who had taken previous online courses reporting higher satisfaction ($M = 3.5$) than those for whom emergency remote teaching represented their first online experience ($M = 3.0$, $t = 5.67$, $p < 0.001$). As Means and Neisler (2021) documented, pandemic

online learning exacerbated existing educational inequities, with students already facing disadvantages experiencing greater difficulties adapting to emergency conditions.

Qualitative interviews provided rich insights into factors underlying satisfaction variations documented quantitatively. Students expressing higher satisfaction typically described several enabling conditions including reliable technology access, supportive family environments conducive to studying at home, instructors who adapted teaching thoughtfully, and personal characteristics like self-discipline and adaptability. One satisfied student explained: "I actually appreciated some aspects of online learning—being able to review recorded lectures helped me understand difficult material better, and I saved time not commuting. My professors made real efforts to make classes engaging, and I had good internet and my own computer, so technically everything worked." Conversely, students reporting low satisfaction described multiple compounding challenges including inadequate technology, home environments not conducive to studying, instructors who simply uploaded materials without meaningful instruction, feelings of isolation, and struggling to stay motivated. A dissatisfied student characterized her experience: "It felt like we were abandoned to teach ourselves while still paying full tuition. My internet constantly failed, I had to share one computer with three siblings, there was no quiet place to study, and professors just assigned readings without really teaching. I learned very little." These qualitative accounts illuminate how satisfaction emerged from interactions among multiple factors rather than single causes, with positive conditions often clustering together for advantaged students while challenges accumulated for disadvantaged students.

Technological Infrastructure and Digital Access Challenges

Technology access emerged as one of the most significant factors affecting students' satisfaction with and ability to participate effectively in emergency online learning. Survey results revealed that only 62% of students reported having reliable, consistent internet access adequate for video conferencing and online coursework. Among students from lower-income backgrounds, this proportion dropped to 43%, compared to 87% among higher-income students. Device access showed similar disparities, with 58% of all students reporting access to personal computers or laptops, while 35% relied primarily on smartphones and 7% regularly needed to share devices with family members. Internet connectivity quality varied substantially, with 41% of students reporting frequent connection interruptions, 34% experiencing slow speeds that impeded participation in synchronous sessions, and 28% having data limitations that required rationing online activities. These technological barriers fundamentally constrained students' ability to engage with online learning regardless of instructional quality or institutional support, creating access inequities that undermined educational equity goals.

Qualitative interviews revealed the profound impacts that inadequate technology had on students' daily experiences and learning outcomes. Students

described missing synchronous class sessions because connectivity failed, being unable to submit assignments by deadlines due to internet outages, experiencing embarrassment when video or audio quality prevented them from participating effectively, and feeling disadvantaged compared to peers with better technology. Several students recounted attempting to complete coursework using only smartphones with small screens that made reading documents difficult and typing substantial text nearly impossible. Some students described traveling to locations with better internet access, including parking outside closed schools or libraries to use WiFi, or spending limited financial resources at internet cafes. One student emotionally described the stress: "I felt constant anxiety about whether my internet would work well enough to attend class. Sometimes I would be frozen and miss important explanations, or get kicked off completely and return to find the class discussing something I had no context for. It made me feel incompetent even though the problem was my internet, not my abilities." As Means and Neisler (2021) documented, the digital divide represents more than mere access to technology, encompassing quality of access, consistency of connectivity, and the stress and disadvantage that inadequate infrastructure creates for students' learning experiences.

Institutional responses to technology access challenges varied considerably, with some universities providing more comprehensive support than others. Several institutions implemented device lending programs allowing students to borrow laptops or tablets for the semester, though these programs rarely met full demand and often faced logistical challenges in distribution and retrieval. Some universities negotiated with telecommunications companies to provide free or reduced-cost internet access for students or distributed data packages, though coverage remained incomplete. A few institutions provided financial assistance specifically designated for technology needs, enabling students to purchase devices or pay for internet services. However, many institutions, particularly public universities with limited budgets, offered minimal technology support beyond general advice about free tools and platforms. Students at institutions providing substantial technology support expressed greater satisfaction and felt their universities demonstrated genuine concern for their success. Students at institutions offering minimal support felt abandoned and resented continuing to pay fees while institutions failed to ensure they could access education. According to Crawford et al. (2020), institutional support for technology access during emergency remote teaching represented a critical factor distinguishing more equitable from less equitable pandemic responses, with support measures partially mitigating though not eliminating digital divide impacts.

The technological challenges extended beyond basic access to encompass platform complexity, technical literacy variations, and learning curve frustrations. Even students with adequate devices and connectivity described struggling with the proliferation of different platforms and tools used across courses, each requiring separate logins, different interfaces, and varying functionality. Students frequently

managed multiple learning management systems, video conferencing platforms, communication apps, and specialized software simultaneously, creating cognitive load and technical troubleshooting demands. Those with limited prior technology experience or digital literacy skills faced steeper learning curves, spending time mastering tools rather than focusing on course content. Technical problems consumed considerable time and energy, with students describing frustration resolving issues that disrupted their learning flow and generated stress. Some students felt that emphasis on technology overshadowed educational substance, with classes becoming exercises in navigating platforms rather than deep learning experiences. Several students contrasted this with face-to-face instruction where technology facilitated rather than dominated learning. As Dhawan (2020) observed, effective online learning requires not just technology availability but technological pedagogical integration where tools support rather than complicate learning objectives, something often absent in emergency remote teaching's rushed implementation.

Pedagogical Practices and Instructional Quality Experiences

Student satisfaction with instructional quality and pedagogical practices showed considerable variation reflecting the wide range of approaches instructors adopted during emergency remote teaching. Students identified several practices they found particularly effective and satisfying including recorded lectures allowing flexible viewing and review, clearly organized course materials with explicit expectations, interactive elements like polls or breakout rooms during synchronous sessions, regular communication from instructors about course progress and upcoming requirements, and multiple opportunities for asking questions and receiving clarification. Students appreciated instructors who acknowledged the challenging circumstances, showed flexibility regarding deadlines and attendance when students faced difficulties, and made visible efforts to adapt their teaching rather than simply replicating face-to-face approaches. One student praised an instructor: "Professor Martinez completely redesigned his course for online delivery. He created short video lessons focused on key concepts, gave us interesting online activities to apply ideas, held regular office hours, and genuinely cared about our learning. His class was the highlight of my week." These positive examples demonstrated that thoughtful pedagogical adaptation could create satisfying online learning experiences even in emergency circumstances.

However, students also described numerous pedagogical practices that diminished satisfaction and hindered learning. Common complaints included instructors who simply uploaded reading materials or PowerPoint slides without providing instruction or explanation, excessive reliance on asynchronous activities without any synchronous interaction, unclear or frequently changing expectations and requirements, minimal or no instructor presence or communication, passive lecture delivery via video conferencing that merely replicated face-to-face lectures without leveraging online affordances, and overwhelming amounts of work

assigned to compensate for assumed ease of online learning. Students particularly criticized "Zoom fatigue" from excessive synchronous sessions requiring sustained screen attention, and conversely felt abandoned when courses operated entirely asynchronously without real-time interaction opportunities. Several students expressed feeling that some instructors had essentially given up on teaching, providing minimal engagement while expecting students to learn independently. One frustrated student characterized a course: "The professor just posted PDFs of his lecture slides with no explanations, no videos, no nothing. We were supposed to read the textbook and then take quizzes. We might as well have been teaching ourselves. I don't know what he was doing but it wasn't teaching." As Hodges et al. (2020) noted, emergency remote teaching revealed substantial variation in instructors' pedagogical capacity and commitment, with some faculty rising admirably to challenges while others struggled to transition effectively.

Assessment and evaluation practices emerged as particularly problematic areas affecting student satisfaction. Many students expressed strong concerns about academic integrity measures that they perceived as excessive, intrusive, or ineffective. Required use of proctoring software that monitored students via webcam, tracked eye movements, or restricted computer functions generated significant objections regarding privacy invasion, technical problems, and stress. Students described feeling treated as presumptive cheaters rather than trusted learners, with surveillance measures creating anxiety that impeded performance. Conversely, students also noted that some peers did engage in academic dishonesty in online assessments, creating unfair advantages and undermining grades for honest students. Assessment formats often relied heavily on multiple-choice exams ill-suited to measuring deep learning, with students feeling their understanding was inadequately assessed. Many students reported receiving minimal feedback on assignments, simply seeing grades without understanding their strengths and areas for improvement. Project-based and authentic assessments received more positive evaluations when implemented, though students noted these were time-intensive and sometimes poorly designed. According to Guangul et al. (2020), assessment represents one of the most challenging aspects of online learning to implement effectively, requiring balance between integrity assurance and student trust, between feasibility and meaningful evaluation, and between formative feedback and summative grading.

The variation in instructional quality both within and across institutions highlighted the importance of faculty development for online teaching and the consequences of insufficient preparation time. Students could readily identify which instructors had prior online teaching experience or received training versus those attempting online instruction without adequate preparation. Students recognized that the sudden transition challenged faculty and generally expressed understanding about initial struggles, but they expected improvement over time and felt disappointed when instructional quality remained poor across multiple semesters. Some students noted stark differences between courses taught by the same instructor

face-to-face versus online, suggesting that good classroom teaching does not automatically translate to effective online instruction without pedagogical adaptation. Students consistently emphasized that instructors' attitudes and effort mattered tremendously – they distinguished between faculty who genuinely tried to create quality online experiences despite challenges versus those who seemed to have given minimal effort. Several students suggested that institutions should have provided more faculty training and support, potentially restricting online teaching to those with appropriate skills or providing more intensive assistance to struggling instructors. As Bao (2020) emphasized, effective online teaching requires specific competencies distinct from face-to-face instruction, with professional development constituting essential infrastructure for quality online education rather than optional enhancement.

Social Interaction, Engagement, and Sense of Community

The loss of social interaction and reduced sense of community emerged as among the most consistently mentioned sources of dissatisfaction in students' accounts of emergency online learning. Survey results indicated that 68% of students felt less connected to classmates than in face-to-face settings, 71% reported reduced opportunities for peer collaboration and group work, and 64% felt less connected to instructors. Only 22% of students felt they had developed meaningful relationships with classmates during online semesters, compared to 78% who reported forming friendships in previous face-to-face semesters. The isolation extended beyond academic contexts to broader college experience dimensions, with students missing campus activities, informal gatherings, student organizations, and spontaneous social interactions that constitute important aspects of university life. Students expressed that online learning felt transactional and impersonal, lacking the relational warmth and community belonging characteristic of campus-based education. These social and emotional dimensions of dissatisfaction frequently mattered as much or more to students than academic concerns, highlighting that satisfaction encompasses holistic educational experiences rather than purely instructional elements.

Qualitative interviews revealed the profound sense of loss many students experienced regarding social connection and community. Students described feeling isolated and disconnected, with online learning lacking the energy and engagement of shared physical spaces. The absence of informal interaction before and after classes, during breaks, or around campus eliminated opportunities for relationship building, casual conversations that deepened understanding, and social support from peers facing similar challenges. Students missed non-verbal communication cues visible in person but lost in video conferencing or asynchronous formats, making interaction feel flat and impersonal. Several students described "Zoom exhaustion" not just from screen time but from the emotional labor of manufactured interaction lacking spontaneity and warmth. First-year students particularly struggled having never experienced in-person university life and having few

established peer relationships to maintain virtually. One student poignantly expressed: "I feel like I'm taking classes but not actually going to university. I don't know my classmates beyond seeing tiny faces in Zoom boxes. There's no sense of belonging or community, just me alone at my computer doing assignments. It's so isolating and depressing." As Berry (2020) documented, the social and emotional impacts of pandemic isolation on students represented serious concerns affecting not just satisfaction but mental health and overall well-being.

Efforts to foster interaction and community in online settings showed mixed results depending on design and implementation quality. Structured collaborative activities like group projects or discussion boards could facilitate peer interaction but required careful design to be effective rather than mere requirements to complete. Breakout rooms during synchronous sessions offered opportunities for small group discussion but often felt forced or superficial, particularly when students lacked established relationships or clear discussion purposes. Some instructors created informal social spaces like optional virtual coffee hours or chat channels for non-academic conversation, which some students appreciated though participation rates varied. Peer study groups organized by students themselves sometimes helped combat isolation and support learning, though these required student initiative and worked better for students with existing friend networks. Students emphasized that authentic community building required sustained relationship development over time rather than one-time activities, with incremental accumulation of positive interactions gradually creating connection. Several students noted that simply enabling video and encouraging camera use during synchronous sessions enhanced sense of presence and connection compared to audio-only or camera-off participation. According to Bolliger and Martin (2018), creating online learning community requires intentional design across multiple course elements and sustained instructor effort to facilitate connection, moving beyond assuming community will emerge automatically to actively cultivating relational environments.

The reduced interaction with instructors represented another significant source of dissatisfaction affecting students' learning experiences and sense of support. While students generally understood that instructors had less individual contact time available when teaching large online classes, the absence of face-to-face office hours, hallway conversations, and informal interactions created distance that hindered relationship building and reduced opportunities for mentorship. Students described feeling like anonymous names on rosters rather than known individuals, with impersonal online environments providing fewer opportunities for instructors to recognize their struggles or particular learning needs. The formality of email communication compared to casual in-person conversation raised barriers to asking questions or seeking help. Video office hours helped but required deliberate scheduling and felt more formal than dropping by physical offices. Students from underrepresented or first-generation backgrounds particularly missed instructor mentorship and guidance that often occurred through informal interaction. Several

students noted that reduced instructor connection made them feel less accountable and motivated, with personal relationships providing extrinsic motivation that weakened in anonymous online settings. One student explained: "When I attended class in person and my professor knew my name and face, I felt responsible to show up prepared and engage. Online, I'm just another tile in a Zoom gallery if I even turn my camera on, and it's easier to disengage because no one really notices or cares." As Hagenauer and Volet (2014) emphasized, student-teacher relationships constitute important but often underappreciated elements of educational quality, with positive relationships enhancing motivation, engagement, and persistence particularly for students facing challenges.

CONCLUSION

This comprehensive examination of Mexican students' satisfaction with emergency remote teaching reveals a complex landscape characterized by moderate overall satisfaction levels concealing substantial variation across different dimensions of online learning and significant inequities based on students' socioeconomic circumstances and institutional contexts. While some students successfully adapted to online learning and even appreciated certain aspects of digital instruction, many experienced considerable challenges that diminished satisfaction and likely impacted learning outcomes. The findings underscore that emergency remote teaching, while necessary given pandemic circumstances, cannot be equated with quality online education designed with appropriate pedagogical approaches, technological infrastructure, and student support systems. Significant proportions of Mexican students faced fundamental barriers including inadequate technology access, limited interaction opportunities, questionable instructional quality, assessment concerns, and profound isolation that affected both academic experiences and broader well-being. These challenges disproportionately impacted already disadvantaged students, with emergency online learning exacerbating rather than reducing educational inequities.

The study's findings carry important implications for Mexican higher education as institutions navigate post-pandemic educational landscapes likely to involve ongoing integration of online and hybrid modalities. Technology equity must be addressed as a fundamental access issue rather than assuming all students can participate in digital learning, requiring sustained investment in connectivity infrastructure, device provision programs, and technical support services. Faculty development focused specifically on online pedagogy represents essential institutional priority, moving beyond assuming face-to-face teaching skills automatically transfer to digital contexts to building specific competencies in online instructional design, engagement strategies, and assessment approaches. Attention to social and emotional dimensions of online learning, including intentional community building and relationship cultivation, should complement focus on academic content delivery. Assessment practices require redesign emphasizing authentic evaluation while balancing academic integrity concerns against student

privacy and trust. Institutions should conduct ongoing assessment of student experiences and satisfaction to identify implementation weaknesses and improvement opportunities. Future research should employ longitudinal designs tracking how satisfaction evolves as online learning matures beyond emergency conditions, investigate specific pedagogical practices and support structures most effectively enhancing satisfaction, and examine whether inequities documented during emergency periods persist or diminish in more planned online implementations. Despite challenges revealed by emergency experiences, online and hybrid education offers potential to expand access and flexibility if implemented thoughtfully with adequate resources and genuine commitment to educational quality and equity.

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