ADAPTABILITY, KNOWLEDGE, RESILIENCE: EFFECTS ON SOCIALIZATION IN A POST COVID-19 CONTEXT – EMPIRICAL STUDY

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ABSTRACT

Objective: The objective of the study is to analyze the socialization of Covid-19 in university students based on its relationship with knowledge, adaptability and resilience.

Theoretical Framework: The theory of socialization analyzes the associations between lived experiences, behaviors, beliefs and dispositions, in particular, socialization focuses on Covid-19 considering that having socialization of information and knowledge helps to overcome challenges, adapt and be resilient when being better prepared for a future contagion or a new pandemic.

Method: Quantitative research, empirical, non-experimental, cross-sectional design, sample of university students. Data collection by questionnaire. Data analysis by partial least squares structural equation modeling (PLS-SEM).

Results and Discussion: The results confirm that knowledge has a strategic role in triggering adaptability, resilience and successful socialization post Covid-19 and support the theory of socialization, elements that are conducive to chaotic situations such as the pandemic.

Research Implications: Professors and university staff, as a socializing organization, can influence formal processes that enhance the social integration of students, acquiring knowledge that allows them to adapt and be resilient to Covid-19 outbreaks or new pandemics.

Originality/Value: Innovative study since, according to the review conducted, there are no previous studies that investigate the direct and indirect effect of adaptation, resilience and knowledge on post covid-19 socialization.

Keywords: Socialization post Covid 19, knowledge, adaptation, resilience, university students.

ADAPTABILIDADE, CONHECIMENTO, RESILIÊNCIA: EFEITOS NA SOCIALIZAÇÃO NO CONTEXTO PÓS COVID-19 – ESTUDO EMPÍRICO

RESUMO

Objetivo: O objetivo do estudo é analisar a socialização da Covid-19 em estudantes universitários a partir de sua relação com o conhecimento, adaptabilidade e resiliência.

Referencial Teórico: A teoria da socialização analisa as associações entre experiências vividas, comportamentos, crenças e disposições, em particular, a socialização centra-se na Covid-19 considerando que ter a socialização da informação e do conhecimento ajuda a superar desafios, adaptar-se e ser resiliente quando estiver melhor preparado para um futuro contágio ou uma nova pandemia.

Método: Amostragem quantitativa, empírica, não-experimental, transversal desenho, amostra de estudantes universitários. Recolha de dados por questionário. Análise dos dados por modelação de equações estruturais por mínimos quadrados parciais (PLS-SEM).

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Resultados e Discussão: Os resultados confirmam que o conhecimento tem papel estratégico no desencadeamento da adaptabilidade, da resiliência e do sucesso da socialização pós-Covid-19 e contribuem para a teoria da socialização, elementos favoráveis em situações caóticas como a pandemia.

Implicações da Pesquisa: Os professores e funcionários universitários, enquanto organização socializadora, podem influenciar processos formais que potenciam a integração social dos estudantes, adquirindo conhecimentos que lhes permitam adaptar-se e ser resilientes face aos surtos de Covid-19 ou a novas pandemias.

Originalidade/Valor: Estudo inovador uma vez que, de acordo com a revisão realizada, não existem estudos anteriores que investiguem o efeito direto e indireto da adaptação, resiliência e conhecimento na socialização pós-covid-19.


ADAPTABILIDAD, CONOCIMIENTO, RESILIENCIA: EFECTOS SOBRE LA SOCIALIZACIÓN EN UN CONTEXTO POST COVID-19 – ESTUDIO EMPÍRICO

RESUMEN

Objetivo: El objetivo del estudio es analizar la socialización de Covid-19 en los estudiantes universitarios a partir de su relación con el conocimiento, adaptabilidad y resiliencia.

Marco Teórico: La teoría de la socialización analiza las asociaciones entre experiencias vividas, comportamientos, creencias y disposiciones, en particular, la socialización se enfoca a Covid-19 considerando que contar con socialización de información y conocimiento coadyuva a superar los retos, adaptarse y ser resiliente al estar mejor preparados ante un futuro contagio o una nueva pandemia.

Método: Investigación cuantitativa, empírica, diseño no experimental, transversal en muestra de alumnos universitarios. La recolección de datos se realizó mediante cuestionario. Análisis de datos por modelado de ecuaciones estructurales basada en mínimos cuadrados parciales (PLS-SEM).

Resultados y Discusión: Los resultados confirman que el conocimiento tiene un rol estratégico para detonar la adaptabilidad, ser resilientes y el éxito de la socialización post Covid-19 y abonan a la teoría de la socialización, elementos favorecedores ante situaciones caóticas como la pandemia.

Implicaciones de la investigación: Profesores y personal universitario como organización socializadora, pueden influir en procesos formales que potencian la integración social de estudiantes, adquiriendo conocimientos que les permitan adaptarse y ser resilientes ante rebrotes Covid-19 o nuevas pandemias.

Originalidad/Valor: Estudio innovador ya que, de acuerdo a la revisión realizada, no existen estudios previos que indaguen sobre el efecto directo e indirecto de adaptación, resiliencia y conocimiento sobre la socialización post Covid-19.

Palabras clave: Socialización post Covid 19, conocimiento, adaptación, resiliencia, estudiantes universitarios.

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1 INTRODUCTION

Covid-19 was the cause of a period of uncertainty during 2020 and 2021, a scenario that forced to transform the lifestyle causing anxiety, insecurity and fear in some people (Gonçalves et al., 2021), and also caused a health and economic crisis that triggered various types of
emotions in the population as a result of contagion, loss of life or employment, or confinement, a chaotic scenario that required resilience to face the changes, take on the challenges, adapt to the circumstances, adapt to the new reality and recover from adversity (Ocampo and Correa, 2022).

In the case of university students, it should be recognized that during their education they face a series of challenges -such as evaluations, academic tasks and relationship management-, to which the pandemic was added: virtual classes and little support for their adaptability from educational centers (Portocarrero et al., 2022; Suárez and Castro, 2022) in the first stage. When returning to face-to-face activities (second stage) the university community is vulnerable to disease transmission due to their agglomeration in different spaces (Zhao, 2022), more considering the emergence of new variants that increases the challenge of achieving control of Covid-19, in addition to seasonal diseases and other outbreaks (Saha, Saha and Podder, 2022).

Therefore, it is necessary to increase awareness of the disease through knowledge about Covid-19, since it is necessary to learn how to live with this virus and its variants, since despite vaccines one is exposed and the probability of contagion is maintained.

On the other hand, socialization theory analyzes the associations between lived experiences, behaviors, beliefs and dispositions, particularly the lessons learned during the process (Merica et al., 2022). This 21st century has brought great challenges for the population, including economic crises, accelerated pace of life, industrial and technological revolution, climate change, crisis of values, openness to sexual diversity, among others. These challenges intensified with Covid-19 and affected socialization (Lunetti et al., 2023).

In all areas of people's lives having information socialization helps to overcome challenges, in schools socialization through education helps to reproduce cultural practices (Kullenberg and Säljö, 2022; Nava and García, 2021), in higher education students are expected to socialize from their entry (Khalid et al., 2023). Socialization is a form of knowledge development, students adopt the morals, norms, skills, approaches and knowledge offered by the university to develop their identity (Fung et al., 2022). In this particular case socialization focuses on Covid-19.

At the beginning of the pandemic, in order to counteract Covid-19 infections, restrictions were imposed, and in the educational sector the teaching and learning process was transferred to virtuality, particularly affecting students (Gonçalves et al., 2021). Hence the need to understand the prolonged individual experience of Covid-19, how it affected students, to understand their needs to help them be prepared for a future contagion or a new pandemic.
Being informed about a disease allows them to identify the symptomatology, to seek medical attention in a timely manner, hence the relevance of appropriating knowledge, a process that depends on their culture, socioeconomic status and religious beliefs, factors that affect the perspective of Covid-19 (Goktas and Ersoy, 2023).

Covid-19 destabilized economic activities at the global level and each of the areas where the population in general performs, from the personal to the social and community levels (Miranda and Jiménez, 2021). Uncertainty generated anxiety, stress and depression, combining confinement and social distancing as a mitigation strategy. Although for Ocampo and Correa (2022) students have a high predisposition to overcome situations of emotional crisis, as well as the ability to overcome the problems generated by Covid-19, it is important to assess their reality.

Four years after the onset of this pandemic, with greater medical and social knowledge of how to treat it, how to take care of oneself and others, knowing that it is necessary to adopt a healthy lifestyle among other aspects, this research is relevant, with the objective of analyzing the socialization of Covid-19 in university students from its relationship with knowledge, adaptability and resilience. Although these variables have already been analyzed theoretically (Dantas et al., 2017), in the framework of Covid-19 there are few studies, which studied the variables separately, for example, resilience and adaptability (Calderón and Saldaña, 2022; Flores, 2021), resilience and socialization (Kosasih et al., 2021), and socialization and knowledge (Khaerunnisa et al., 2021). However, there are few empirical studies that analyze these four variables together, it is therefore relevant to analyze them.

2 THEORETICAL FRAMEWORK

2.1 ADAPTABILITY

The pandemic unbalanced the environment, caused radical changes, transferred education and work to the digital world, which made people vulnerable, generated the need for adaptation to stay at home, scenario to study, work and have fun, using information technologies to continue social interaction and survive (Moreira and Villao, 2023; De las Nieves et al., 2022; Gómez, 2021).

The positive approach of Covid-19 is the ability to adapt, for example, learning to live digitally (Pozos, 2023). For Zamarripa et al. (2020) adaptability implies stress, a greater effect
in women. Adaptability allows students to overcome social distancing during Covid-19 and to use wellness strategies for mental health.

Few studies were found analyzing adaptability as a predictor of socialization, all in the educational setting, one of them found that adaptability is poor because of socialization (McDonald et al., 2015). The others found that adaptive behavior favors socialization behaviors (Schires et al., 2020; Yule, Murphy, & Grych, 2020; Bertollo et al., 2019).

H1. Adaptability to Covid-19 positively and significantly influences resilience.

2.2 KNOWLEDGE

To mitigate the effects of Covid-19, it is important to evaluate the level of knowledge acquired (Venkataraman, et al., 2023), because of its influence on the adoption of preventive measures (Vidal, et al., 2022), which reduce the probability of infection (Zhao, 2022). Carreño, Chaparro and Pardo (2022) confirmed in a study of caregivers of patients in Colombia an increase in the knowledge of the mechanisms of virus transmission and prevention measures, however, they argue the need to improve the knowledge of prevention and management of infectious diseases, as a means to mitigate the levels of stress and fear.

The research by García et al. (2022) on Covid-19 with stomatology students in Güines (Cuba), found that the majority (75%) knew the definition of the disease and the routes of transmission (95%), prevention measures (66%) and biosecurity (62%), but they argue insufficiency. Therefore, educational interventions from health promotion and training are necessary in order to modify prevention behaviors (vaccination, non-pharmaceutical interventions) of the disease and loss of human lives (Ortíz et al., 2022; Zhao, 2022).

Other studies illustrate high epidemiological knowledge, low preventive knowledge and medium healthcare knowledge, concluding that it is important to train on infection control practices for Covid-19, to have a communication strategy on prevention and control of the disease that allows facing eventual outbreaks (Beltrán et al., 2021; Cayo et al., 2021). It should be noted that recent studies with university students show above-average levels of knowledge of Covid-19 (Krishnan, Krishnan and Chan, 2022).

Research in industrial and medical contexts provides evidence that educational sessions develop knowledge that favors adaptability (Morgan, Roath, & Glenn, 2023; Hou & Liu, 2021; Warzyniec, Tariman, & Simonovich, 2019). Also previous studies have shown that knowledge contributes to understanding resilience (Guo et al., 2023; Bumberger et al., 2022; Wei and Hao,

2022; Zank et al., 2022). Studies on knowledge and socialization are scarce, only Rabiossi and Santangelo (2013) were identified, who found that knowledge appropriation has a positive relationship with socialization.


2.3 RESILIENCE

Resilience is associated with the positive development of individuals in the face of adversity, unfavorable situations and future expectations, making them capable of overcoming challenges and emerging transformed from that experience (Martínez et al., 2023; Portocarrero et al., 2022; Samogim et al., 2021; Villalba and Avello, 2019). The university population experiences mental situations that were aggravated by Covid-19 given their average level of resilience (Hernández et al., 2023).

Experiencing worry and anxiety affects the level of resilience, which exerts a mediating role between anxiety and fear to Covid-19 (Gonçalves et al., 2021). Previous studies have found that men show greater resilience in unfavorable social situations, which was confirmed in the pandemic (Portocarrero et al., 2022; Villalba and Avello, 2019). Zhang et al. (2023) found that career adaptability and resilience predict each other. Xu et al. (2020) explored the relationship between adaptability, resilience and mental health problems in adolescents, they found that adaptability has a significant predictive effect on resilience. Other studies also found a positive and significant relationship between adaptability and resilience (Sofyan et al., 2021; Santilli, Grossen, & Nota, 2020; Ginevra et al., 2018).

H6. Resilience positively and significantly influences socialization.

2.4 SOCIALIZATION

Socialization theory investigates the associations between lived experiences, behaviors, beliefs and dispositions (Merica et al., 2022). Socialization enables learning, family and school are its main scenarios. The digital economy created virtual socialization where the individual can acquire different roles, identities and decide what to show of his life (Balea, 2021; Romero, 2021).

Socialization is an experience where individuals interact to share information regarding
a topic, in particular it influences the behavior of young university students (Jimenez, 2021; Nava and Garcia, 2021). Socialization through education is necessary to reproduce existing cultural and institutional practices, but is sometimes limited to facilitating adaptation to existing values and accumulated knowledge (Kullenberg and Säljö, 2022). In addition, socialization tactics are used to manage interactions between group members to facilitate transitional experiences (Benson, Evans, & Eys, 2016).

Considering the described literature, the hypothesized research model is established in figure 1, which apart of the hypotheses listed in the previous subheadings, includes the following mediating hypotheses:

H7. Adaptability mediates the positive and significant relationship between knowledge and resilience

H8. Resilience mediates the positive and significant relationship between adaptability and socialization

H9. Adaptability and resilience mediate the positive and significant relationship between knowledge and socialization

**Figure 1**

*Hypothesized research model.*

Source: own elaboration
3 METHODOLOGY

Quantitative, empirical, non-experimental, cross-sectional design, non-probabilistic sampling of university students. Data collection was done by questionnaire, during the months of June and July 2022, a sample of 141 valid surveys was collected. Regarding data analysis, the statistical technique of partial least squares based structural equation modeling (PLS-SEM) was applied, due to its usefulness in exploring and predicting models, as well as being implemented mainly for the development of theories that are in the early stages of development (Hair et al., 2019).

Initially, the available academic literature was consulted and analyzed to identify the background of the variables measured in this study. Thus, the instrument to be used for data collection was designed, based on scales previously validated and adapted to the context, with Likert-type items with five response points, ranging from 1 (strongly disagree) to 5 (strongly agree). The variable knowledge about Covid-19 was assessed by 9 items adapted from Bezon, et al. (2021), Kumar, Pinky and Nurudden (2021) and Akyurt (2021); the adaptability measure was through 9 items adapted from Martin et al. (2012). For resilience, 9 items were adapted from Rivera, Shapoval and Medeiros (2021). Finally, for socialization, 9 items were adapted from Byrd (2018).

4 RESULTS

The proposed socialization model was analyzed using SMARTPLS 3.3.7 software (Ringle et al., 2015). The measurement model, the structural model and the global model were evaluated (Benitez et al., 2020). The evaluation of the measurement model starts by pointing out that it is integrated by reflective variables, its analysis was performed to verify construct reliability, convergent validity and discriminant validity (Sarstedt et al., 2014). Construct reliability was assessed with Cronbach's alpha, Rho and composite reliability (Hair et al., 2017).

The first step was to verify the loadings of each item, these should reach a value of 0.708 or higher (Hair et al., 2017), for not meeting this criterion the items were eliminated: CC1, CC2, CC5, CC7 and CC9 of the knowledge variable; A7, A8 and A9 of the adaptability variable. R5, R6, R7, R8 and R9, items of the resilience variable, were also eliminated; finally, SC4 and SC6 of socialization were eliminated. In order not to affect the reliability levels of the corresponding variable, items CC3 and R4 were kept despite having loadings lower than 0.780 (Hair et al., 2017).
Table 1 shows the items with which each variable of the model was measured, as well as their loadings, Cronbach's alpha coefficient, the Dijkstra-Henseler value (rho_A) and the composite reliability, on the latter the values are considered adequate given that they are between 0.7 and 0.95 (Reidl, 2013; Cascaes da silva et al., 2015; Hair et al., 2017).

Table 1
Construct reliability, convergent validity, cross loads and Fornell-Larcker / HTMT.

<table>
<thead>
<tr>
<th>item</th>
<th>Load</th>
<th>Alpha</th>
<th>rho_A</th>
<th>Comp. Reliab.</th>
<th>cross loads</th>
<th>Fornell-Larcker / HTMT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>A1</td>
<td>0.772</td>
<td></td>
<td></td>
<td></td>
<td>0.8</td>
<td>0.619</td>
</tr>
<tr>
<td>A2</td>
<td>0.804</td>
<td></td>
<td></td>
<td></td>
<td>0.8</td>
<td>0.485</td>
</tr>
<tr>
<td>A3</td>
<td>0.829</td>
<td>0.917</td>
<td>0.919</td>
<td>0.923</td>
<td>0.8</td>
<td>0.494</td>
</tr>
<tr>
<td>A4</td>
<td>0.750</td>
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<td></td>
<td></td>
<td>0.8</td>
<td>0.515</td>
</tr>
<tr>
<td>A5</td>
<td>0.832</td>
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<td></td>
<td></td>
<td>0.8</td>
<td>0.445</td>
</tr>
<tr>
<td>A6</td>
<td>0.834</td>
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<td></td>
<td></td>
<td>0.8</td>
<td>0.690</td>
</tr>
<tr>
<td>CC3</td>
<td>0.690</td>
<td></td>
<td></td>
<td></td>
<td>0.4</td>
<td>0.714</td>
</tr>
<tr>
<td>CC4</td>
<td>0.714</td>
<td>0.728</td>
<td>0.733</td>
<td>0.829</td>
<td>0.4</td>
<td>0.810</td>
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<tr>
<td>CC6</td>
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<td></td>
<td>0.4</td>
<td>0.749</td>
</tr>
<tr>
<td>CC8</td>
<td>0.749</td>
<td></td>
<td></td>
<td></td>
<td>0.4</td>
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</tr>
<tr>
<td>R1</td>
<td>0.807</td>
<td></td>
<td></td>
<td></td>
<td>0.5</td>
<td>0.325</td>
</tr>
<tr>
<td>R2</td>
<td>0.841</td>
<td>0.777</td>
<td>0.801</td>
<td>0.819</td>
<td>0.4</td>
<td>0.375</td>
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<td>R3</td>
<td>0.779</td>
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<td></td>
<td></td>
<td>0.4</td>
<td>0.118</td>
</tr>
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<td>R4</td>
<td>0.642</td>
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<td></td>
<td></td>
<td>0.2</td>
<td>0.195</td>
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<td>SC1</td>
<td>0.745</td>
<td></td>
<td></td>
<td></td>
<td>0.2</td>
<td>0.236</td>
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<td>SC2</td>
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<td></td>
<td></td>
<td></td>
<td>0.2</td>
<td>0.099</td>
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<td>SC3</td>
<td>0.742</td>
<td></td>
<td></td>
<td></td>
<td>0.2</td>
<td>0.290</td>
</tr>
<tr>
<td>SC5</td>
<td>0.780</td>
<td>0.886</td>
<td>0.911</td>
<td>0.901</td>
<td>0.2</td>
<td>0.324</td>
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<tr>
<td>SC7</td>
<td>0.763</td>
<td></td>
<td></td>
<td></td>
<td>0.3</td>
<td>0.155</td>
</tr>
<tr>
<td>SC8</td>
<td>0.758</td>
<td></td>
<td></td>
<td></td>
<td>0.1</td>
<td>0.346</td>
</tr>
<tr>
<td>SC9</td>
<td>0.778</td>
<td></td>
<td></td>
<td></td>
<td>0.2</td>
<td>0.346</td>
</tr>
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</table>

1 = A = adaptability; 2 = C = knowledge; 3 = R = resilience; 4 = SC = socialization.
Source: own elaboration using SmartPLS 3.3.7 (Ringle et al., 2015).
Convergent validity is assessed based on the variance extracted from the mean (AVE), it must have a value equal to or greater than 0.5 to explain at least 50% of the variance of the items of the variable (Benitez, et al., 2020; Hair et al., 2017; Sarstedt et al., 2014), as shown in the AVE column of Table 1 the criterion is met. Discriminant validity represents the extent to which an item is different from the others, it is determined with the analysis of cross-loadings, the Fornell-Larcker criterion and HTMT (heterotrait-monotrait ratio) (Hair et al., 2017), whose results in table 1 reveal, that the loading of each item is higher on the construct it measures and lower on the other constructs, therefore discriminant validity is established.

The Fornell-Larcker criterion verifies that the square root of the AVE of a variable is greater than its correlation with another variable, which can be seen in Table 1, confirming the existence of discriminant validity (Barclay et al., 1995; Fornell and Larcker, 1981). HTMT estimates the correlation of factors (an upper limit) that verifies their difference, for a well adjusted model the heterotrait correlations should be smaller than the monotrait correlations, so the HTMT ratio must be significantly less than 1, criteria that are met in the table 1 results.

The evaluation of the structural model comprises the evaluation of the predictive relevance with the values of the coefficient of determination (R²), and the Stone-Geisser value (Q²), the evaluation of the effect size (f²), the evaluation of the collinearity and the determination of the path coefficients (Benitez et al., 2020; Ringle et al., 2020). As part of the assessment of the structural model, the path coefficients, the relationships between the variables representing the hypotheses established in this research study, were evaluated. Figure 2 and Table 2 present the results obtained from the evaluation of the structural model. Of the direct relationship hypotheses, those hypotheses whose value was significant, i.e. the p-value was less than 0.05, were accepted. Therefore, only H2 is not supported.

Table 2
Hypothesis Testing and Specific Indirect Effects.

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Path</th>
<th>t</th>
<th>p</th>
<th>f²</th>
<th>VIF</th>
<th>Accepted?</th>
</tr>
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<tbody>
<tr>
<td>H1. A → RI</td>
<td>0.606</td>
<td>6.977</td>
<td>0.000</td>
<td>0.385</td>
<td>1.527</td>
<td>Yes</td>
</tr>
<tr>
<td>H2. A → SC</td>
<td>0.192</td>
<td>1.584</td>
<td>0.113</td>
<td>0.001</td>
<td>2.115</td>
<td>No</td>
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<tr>
<td>H3. C → A</td>
<td>0.587</td>
<td>8.449</td>
<td>0.000</td>
<td>0.527</td>
<td>1.000</td>
<td>Yes</td>
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<tr>
<td>H4. C → R</td>
<td>0.366</td>
<td>3.531</td>
<td>0.000</td>
<td>0.000</td>
<td>1.527</td>
<td>Yes</td>
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<tr>
<td>H5. C → SC</td>
<td>0.331</td>
<td>3.228</td>
<td>0.000</td>
<td>0.037</td>
<td>1.527</td>
<td>Yes</td>
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<tr>
<td>H6. RI → SC</td>
<td>0.236</td>
<td>2.320</td>
<td>0.020</td>
<td>0.042</td>
<td>1.600</td>
<td>Yes</td>
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<td>H7. C → A → RI</td>
<td>0.356</td>
<td>5.912</td>
<td>0.000</td>
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<td>Yes</td>
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<td>H8. A → RI → SC</td>
<td>0.143</td>
<td>2.118</td>
<td>0.034</td>
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<td>H9. C → A → R → SC</td>
<td>0.084</td>
<td>1.990</td>
<td>0.047</td>
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</tr>
</tbody>
</table>

A = adaptability; C = knowledge; RI = resilience; SC = socialization; f² = effect size, VIF = variance inflation factor. Source: own elaboration using SmartPLS 3.3.7 (Ringle et al., 2015).
The study also includes mediation hypotheses, whose analysis contrasts hypotheses of direct relationship between the independent variables and the dependent variable mediated by some independent variables. The results of indirect effects can be seen in Table 5, the three hypotheses (H7, H8, H9) were significant. In this sense it can be concluded that: adaptability mediates the relationship between knowledge and resilience; resilience mediates the relationship between adaptability and socialization, and adaptability and resilience mediate the relationship between knowledge and socialization. In all cases the mediation is of the complementary type (Hair *et al.*, 2019).

The variance inflation values (VIF) of the model were reviewed to verify the inexistence of multicollinearity. The criterion indicates that the VIF values should be less than 3.0 (Hair et al., 2019), which is met given that the maximum value is 2.115 as shown in Table 5. The coefficient of determination $R^2$, indicates the degree of explanatory measure of the independent variables on the dependent variables, which will be greater as it is closer to 1; an $R^2$ value greater than 0.75 indicates that it is substantial, $R^2$ greater 0.5 moderate, and $R^2$ greater than 0.25 weak (Hair *et al.*, 2011). The results are 0.345 for adaptability, 0.375 for resilience and 0.168 for socialization, i.e., for all cases the explanation is weak (see Figure 2).

**Figure 2**

*Structural model*

Source: own elaboration
With the Q² value the degree of prediction of the endogenous variables is evaluated, values lower than 0.25 indicate a small predictive accuracy (Ali et al., 2018, Hair et al., 2017). The Q² value was 0.236 for adaptability, 0.194 for resilience, 0.084 for socialization; these values point to a small predictive accuracy.

5 DISCUSSIONS AND CONCLUSION

The socialization of knowledge is a strategic task that in the past was exercised only by universities, but today they share this role with other actors in the digital economy, so universities must generate new channels to fulfill this function, since it is a complex process influenced by culture and social interaction (Denham, Ferrier and Bassett, 2020). As mentioned beforehand, this work aimed to analyze Covid-19 socialization in university students based on its relationship with knowledge, adaptability and resilience. In this sense, it is innovative given that, according to the review carried out, there are no studies that investigate the direct and indirect effect of adaptability, resilience and knowledge on socialization.

On the one hand, it was proposed that adaptability to Covid-19 has a positive and significant influence on resilience. The results confirm this in the environment of Mexican universities. The above is consistent with previous work (Zhang et al., 2023; Sofyan et al., 2021; Santilli et al., 2020; Xu et al., 2020; Ginevra et al., 2018) indicating that adaptability has favorable effects on student resilience. In the context studied, adaptability is manifested to a greater degree when the learner develops new ways of doing things (new routines) in the face of uncertainty by Covid-19 to help him or herself move forward. Furthermore, it was postulated that adaptability to Covid-19 positively and significantly influences their socialization. Our findings evidence the above, likewise agree with the arguments of Schires et al. (2020); Yule, Murphy & Grych (2020); Bertollo et al. (2019) and McDonald et al. (2015). In the university context the student has the ability to adapt to changes, it is part of his profile. In addition, he shares, socializes how he achieved it to facilitate the adaptability of others. In this study socialization is deployed to a greater degree in courses and classes where the student has learned new things about Covid-19, and in the information provided by the university that allows the student to develop their activities with greater care to avoid contagions.

Also the results confirm the postulation that knowledge about Covid-19 positively and significantly influences adaptability, also agree with the arguments of Neirotti (2018) and Wickramasinghe & Wickramasinghe (2011), who point out that people are involved in the analysis of problems, based on their knowledge and research propose solutions, likewise in the
face of market and technology changes. In the context of the study, knowledge is deployed to a greater extent in that university students consider it important to maintain a healthy distance as an aid to prevent infection, in addition to avoiding contact with certain groups of people, such as those who come from abroad, people over 65 years of age, among others, as a measure to prevent infection.

Furthermore, it was postulated that knowledge about Covid-19 positively and significantly influences resilience and socialization, which is confirmed by the results. They also agree with those of Kiyota (2021); Xiong et al. (2022); Yao, Li & Liang (2021). The postulation that resilience positively and significantly influences socialization was also confirmed as in previous studies (Gülseven et al., 2022; de Carvalho et al., 2011). In the study context resilience is displayed to a greater degree by the student dealing with any emergency that may occur by Covid-19 and having a positive attitude in his or her environment (family, community and work).

The present study contributes to the literature by analyzing how college students' practices impact socialization. The results confirm that knowledge has a strategic role in triggering adaptability, resilience and successful socialization. Therefore, teachers and university authorities should recognize themselves as a socializing organization, in this sense having formal processes that enhance the social integration of students, who receive the knowledge that allows them to adapt and be resilient in the face of challenges and adversity, whether it be Covid-19 outbreaks or the emergence of new pandemics.

The findings of this study offer some implications for teachers, staff, and students. First, group dynamics can be considered to encourage students to come together to research and discuss some topic, in this case Covid-19. Secondly, primarily teachers should address their knowledge and adaptive skills needs, as well as share them in groups. Finally, recommend that they use digital and social resources to improve their knowledge, adaptation and resilience.

As future lines of research, it is recommended to give continuity to the present investigation to confirm the results, as well as to deepen in the factors linked to the university student that determine the success of socialization. Given that this work is quantitative, it is recommended that the results be complemented with qualitative approaches that allow the identification of factors associated with the variables studied, not located due to the limitations of the quantitative design. It should be noted that no previous study has used exactly the same variables together, so it is not easy to accurately compare the results of the structural model with the results of previous research. Despite some limitations, as the study was conducted in the context of a single country and public universities, provides unique contributions to the

literature on socialization theory. The findings of this study will be beneficial to researchers and practitioners in conducting further studies on possible forms of socialization.

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