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## Teachers as Digital Immigrants:

### Does Hybrid Identity Facilitate Integration in the Digital World?

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#### Abstract

This study adopted a model from the immigration literature and viewed the transformation of teachers into the digital world as immigration – resembles geographical immigration. The study focused on teachers' hybrid (digital and traditional) identity as digital immigrants during their immigration and examined the role of innovative school climate and technological training as moderators. Data was collected from 145 teachers from junior high and high schools. The findings indicated that the hybrid identity significantly predicted objective and subjective integration of the teachers as digital immigrants, especially when the innovative climate of the school and digital training of the teachers were low.

**Keywords:** Digital immigrants, objective and subjective integration, digital world, hybrid identity

## **1. Introduction**

The year 2019, when COVID-19 occurred, has changed many work environments, as the work's nature has shifted dramatically. The educational systems throughout the world, like other social systems, have been impacted as a result. The epidemic caused a reduction that accelerated the integration of digital and technological tools in the education system (Ahmed & Opoku, 2022; Chehri et al., 2021; Reich et al., 2020).

School teachers had to acquire and use new skills in order to teach. In other words, they must transform and become integral to the 21<sup>st</sup>-century digital world (Chehri et al., 2021). Here, it is proposed that the transformation from traditional to digital teachers is similar to geographical immigration between countries. Immigration to a new country requires a change in thought and the acquisition of new skills, such as immigration into the digital sphere. In this immigration, the students are the natives (Prensky, 2001) as they were born into the digital world, and the teachers are the immigrants. Further, if digital immigrants (teachers) want to teach digital natives (students), they will have to transform (Prensky, 2001). This immigration, in many cases, can be seen as forced immigration.

Recent studies find that immigrants' integration in the new country requires a dynamic hybrid identity, i.e., holding an origin country identity while adopting a new local identity. In other words, multiple identities, rather than abandoning the "old" identity and ultimately adopting a new identity, would result in a better integration (see: Bommers, 2021; Stavisky, 2020). This is specifically true when immigration is forced (Dolberg & Amit, 2022; Stavisky, 2020). The same is suggested for teachers' digital immigration.

The current study examines teachers' (the immigrants) integration into the new society (digital society) based on models that originate in immigration research, particularly forced immigration. The study also focuses on the role of school innovation climate and technological training as potential moderators that may facilitate the beneficial effects of hybrid identity on integration into the digital sphere.

## **2. Literature Review**

### **2.1. Teachers as digital immigrants**

Immigration is characterized as moving from one country to another, from one cultural code to another. There are several motivations to immigrate, for example, the offspring's future, a

war in the origin country, economic factors, a better educational and medical system in the host country, and more (Bommes, 2021; Remennick, 2007). Usually, the immigrants actively choose to immigrate to their destination, but in some cases, immigration has been forced.

Studies show that the decision to immigrate is one factor that affects positive integration. For example, recent studies find that immigration in adolescence is usually less successful, among other reasons, because the immigrant did not actively decide to immigrate but his or her parents (Amit, 2012; Dolberg & Amit, 2022; Remennick & Prashizky, 2019; Stavisky, 2020). Similarly, teachers' transition to the online reality can be seen as forced immigration because of the Covid-19 pandemic.

The concept of “digital immigrants” refers to individuals who were not born and raised in the digital age and may struggle to adapt to new technology (Prensky, 2001). Most of today's teachers were born in the mid-80s- beginning the -90<sup>th</sup> – generation that is considered “digital immigrants” and the students are “digital natives” (Oblinger & Oblinger, 2005; Prensky, 2012). Moreover, teachers born in the mid of the 90s and even at the beginning of the 2000s will be considered “digital immigrants” in every pedagogical issue. This is because digital teaching competence, both technological and pedagogical, is required. It is not enough to be born within the 21<sup>st</sup>-century; teachers must require and implement 21st-century teaching skills and use ICT (Information Communications Technology) during their teaching practice (Ratheeswari, 2018). To conclude, the transition to digital reality is digital immigration, which may be seen as physical immigration from one country to another. As such, it is expected that some would integrate into the new online reality while others might have difficulties doing so (Watkins, 2009).

## **2.2. Hybrid identity as a facilitator**

The current research argues that hybrid identity (digital and traditional) may assist the teacher in moderating the difficulties accompanied by the process of digital immigration. Hybrid identity means holding two dynamic identities, which allows teachers to have the ability to maintain their traditional teacher identity while gaining a new identity as an online teacher. In the past, it was argued that a successful immigration process should include the complete abandonment of the old identity and adoption of a new identity (for review, see Bommes, 2005, 2021). However, recent findings indicate that maintaining two interacting dynamic identities is an essential component in the transformation process in traditional geographical immigration, as it is related to better integration in the new community (Amit, 2012; Dolberg & Amit, 2022; Remennick, 2007; Stavisky, 2020).

The traditional identity means that the teacher sees him or herself as responsible for transmitting the knowledge, keeping the class disciplined, and generally being responsible for all student's activities during the class and the instructions that students receive during the lesson. Further, the traditional teacher is the center of knowledge and invests time in explaining the material while the students are taking notes and asking questions (Mascolo, 2009).

There are advantages to having some components or ingredients of the traditional teacher identity in online reality. The teacher should be, for example, the facilitator of class discussion, even if he or she is losing primacy to the internet as the leading resource of knowledge. The teacher in the digital world should keep class discipline and curriculum (Clifton & Jordan, 2019). Thus, the current research posits that the teacher should intelligently navigate between the offline and online identities for the transformation would be successful – just as in traditional immigration, a hybrid identity seems to be the desired one. The current study assumes that as hybrid identity is crucial for geographical immigration, it would have similar beneficial effects on digital immigration. In other words, having both a traditional teacher identity and a digital identity should facilitate the teacher's integration into a digital world.

Some empirical evidence supports this claim. For example, compared to teachers with traditional identity, teachers with hybrid identity were more likely to be creative in their use of technology and to use it in ways that enhance their teaching practices rather than simply using it as a replacement for traditional methods (Clifton & Jordan, 2019; Hinman et al., 2021). Further, it was found that, compared to traditional teachers, teachers with a hybrid identity were more likely to use technology to create new learning opportunities for their students and were more likely to use technology in ways that supported student-centered learning (Hinman et al., 2021).

The positive relationship between teachers' hybrid identity and their integration into the digital world can also be seen in terms of their use of digital tools and resources. Teachers with a hybrid identity are more likely to use a broader range of digital tools and resources in their teaching and to use them to support their student's learning goals and objectives. Further, one study (Lin & Chen, 2019) found that teachers with a hybrid identity were more likely to use digital tools such as interactive whiteboards, educational games, and e-books in their teaching and were more likely to use them in ways that supported student engagement and active learning.

A study by Ertmer et al. (2012) found that teachers with high digital identities were more

willing to use technology in their instruction and experiment with new digital tools and resources. Furthermore, teachers who are high in both traditional and digital identities are more likely to use technology in a meaningful and effective way (Warschauer & Matuchniak, 2010).

Moreover, the concept of a “hybrid identity” for teachers can provide insight into the factors contributing to the successful integration of technology in education and their integration into the digital world. Teachers who have a balance of traditional and digital identities are expected to be successful in the digital world, both in terms of their use of technology and in terms of their attitudes and perceptions towards technology (Clifton & Jordan, 2019).

Integration is a process in which immigrants embrace values and norms acceptable in the local culture (Bommes, 2005). Immigrants’ integration into the new culture is essential to transforming their identity into a hybrid one that includes both past and current identities (Stavissky, 2020). Here I focus on the effects of a hybrid identity on teachers’ objective and subjective integration into the digital sphere.

### **2.3. Parameters of integration**

Objective parameters of integration are one facet of integration. Objective parameters include, for example, financial success, having local friends, and mastering the local language. Objective parameters of the teachers’ integration into the digital reality could be: being a literate digital teacher and using online teaching methods during the teaching (Stavissky, 2020).

However, subjective measures could also measure integration (Stavissky, 2020). Subjective integration is characterized by a sense of belonging to the new society and a subjective perception of integration, usually accompanied by feelings of well-being (Stavissky, 2020). A subjective integration includes a “feeling of being at home” and feeling comfortable in the new society (Stavissky, 2020). This should also apply to teachers’ digital immigration. Subjective digital immigration should include a feeling of belonging to the digital society. The current study expects that these measures of objective and subjective integration would be predicted by hybrid identity, as found in the previous research on forced geographical immigration (Remennick & Prashizky, 2019; Stavissky, 2020).

Moreover, as the process of geographical immigration is considered similar to the process of digital immigration, it is also expected a similar association between teachers’ integration in the online world and their successful integration in online teaching. Similar to the integration

of immigrants into the new society, it depends on the characteristics of the host society and the social mirror the immigrants are reflected upon (Remennick, 2003; Remennick & Prashizky, 2019; Stavisky, 2020). Individual integration into the digital world is largely influenced by social and institutional characteristics of the context in which teachers work.

I focus on key factors that may facilitate or hinder the development of teachers' hybrid identity: Innovative school climate and digital training.

#### **2.4. Innovative Climate**

An “innovative climate” refers to the level of support and encouragement for the integration of technology and innovation within a school or educational institution (Moolenaar et al., 2010). A school with a strong innovative climate will likely provide teachers with the resources, training, and support they need to integrate technology effectively into their teaching practices (Katyudo & de Souza, 2022). This learning environment encourages creativity, critical thinking, and a sense of community among students and staff (Moolenaar et al., 2014). Further, this type of climate is characterized by strong leadership, clear expectations, effective communication, and opportunities for student engagement and participation (Moolenaar et al., 2010). It also often includes incorporating technology, flexible teaching methods, and focusing on student well-being and mental health. Additionally, an innovative school climate can also refer to sustainable and environmentally friendly practices being implemented in the school (Chou et al., 2019). Thus, an innovative school climate should play a role in the success or failure of the transition into digital reality.

Research has shown that schools with a strong innovative climate are more likely to have teachers who are comfortable and confident in their use of technology and are more likely to use technology in ways that support student learning. For example, a study by (Lin & Chen, 2019) found that teachers in schools with a solid innovative climate were more likely to report that they had a good understanding of how to use digital tools in their teaching and were also more likely to have a positive attitude towards the integration of technology in education. Similarly, it was found that teachers in schools with a positive technology-rich learning environment were more likely to use technology in ways that supported student-centered learning and collaboration (Becuwe et al., 2017; Dreer, 2022). Thus, the findings of PISA (2018), from OECD's reports, show that schools with a climate that urges innovation, openness toward innovative ways of teaching, and innovative perceptions of the principal were the indicators of the readiness of the school system for the transition to online teaching and the preparedness of teachers for this transition (Schleicher, 2019).

## **2.5. Pedagogical training in online teaching and permanent technical support**

Training in online teaching, in the form of both technical and pedagogical, is one of the focuses of the current investigation. It seems that when the teacher is not digital-oriented or trained, he or she might have difficulties in integration. Thus, training in online teaching is essential for teachers who are not digital-oriented because, in order to teach digital natives, teachers must possess technical and pedagogical skills (OECD, 2022). Further, teachers must have a digital learning experience before being expected to be digital teachers; otherwise, they simply map traditional practices onto the new medium (Gold, 2001). Accordingly, Nelson and Bohanon (2019) posit that technology training is an essential ingredient to technology use by teachers and, as a result, will serve as a factor for integration.

Moreover, according to the findings of PISA (2018), training is necessary to require technical and pedagogical skills to integrate digital devices into policies and instructions and the teachers into the digital world (Schleicher, 2019). Thus, I claim that without proper pedagogical training and online experience, teachers will continue to replicate their best existing practices onto the online medium and will not integrate.

## **2.6. Summary**

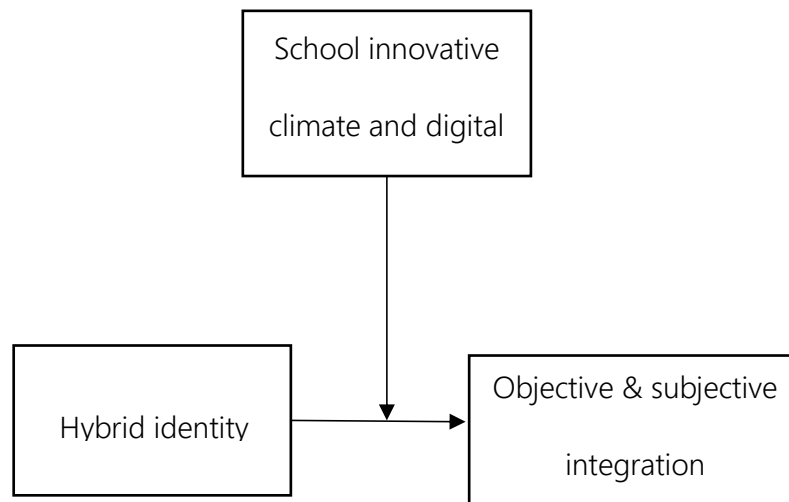
Covid-19 was declared a world emergency that forced almost all countries worldwide to adopt a sequence of emergency management mechanisms (Gordon et al., 2021; Guo et al., 2020; Horesh et al., 2021; Tandon, 2020). Many countries took the strategy of lockdowns, including closing schools, which were extensive in Israel. This accelerated the transformation of the education system into a digital reality (Masry-Herzallah & Stavisky, 2021a, 2021b). The transformation of the whole world to digital reality changes the education system entirely, and we have the opportunity to observe these changes (Ariawan & Malang, 2020). Moreover, the school educational system's future depends on teachers' success with modern digital competencies (Blau & Shamir-Inbal, 2017).

Holding a hybrid dynamic identity of both traditional and digital teachers should facilitate immigration to the digital sphere – similarly to physical geographical immigration. This should result in better subjective and objective integration, which may improve the teacher's transition into online teaching. A school culture that encourages innovation and sufficient digital training is expected to facilitate the relationships.

## 2.7. Hypotheses

**Hypothesis 1:** Teachers' level of hybrid identity will be positively related to their objective and subjective integration in the digital world.

**Hypothesis 2:** The positive relationship between teachers' hybrid identity and their objective and subjective integration in the digital world will be moderated by the school's innovative climate and training – which are essential for digital integration.



## 3. Method

**3.1. Participants.** One hundred forty-five junior high and high school teachers volunteered to participate in the study. Of them, 42% are female, 32% are male, and 26% did not mention their gender. The teacher's mean age was 43.53 ( $SD = 11.68$ , min = 23, max = 77). All teachers gave their consent to participate in the study after we promised to keep their anonymity and explain the general purpose of the study.

### 3.2. Tools.

**3.2.1. Independent variables.** To measure participants' *traditional teacher identity*, I used six items ( $\alpha = .77$ ). A sample item is "I see myself as a teacher whose primary role is to teach, compose exams, examine the students, and evaluate them at the end of the process". To measure participants' *digital teacher identity*, I used 12 items ( $\alpha = .86$ ). A sample item is "I see myself as a teacher that learns, innovates, and creates novelty in her work". For all items, teachers marked their agreement on a Likert scale ranging from 1 ("completely disagree") to 5 ("completely agree").



Teachers that received scores below the traditional identity median score (2.83) and below the digital identity median score (3.91) were categorized as low in both identities ( $n = 40$ ); Teachers who received scores below the traditional identity median score and above the digital identity median score were categorized as low in traditional identity and high in digital identity ( $n = 37$ ); Teachers who received scores above the traditional identity median score and below the digital identity median score were categorized as high in traditional identity and low in digital identity ( $n = 39$ ); Teachers that received scores above the traditional identity median score and above the digital identity median score were categorized as teachers with a hybrid identity ( $n = 29$ ).

I further assessed *hybrid identity* directly using three items ( $\alpha = .67$ ). A sample item is “*I am a teacher that can teach both traditionally when needed and innovatively when needed*”. Teachers marked their agreement on a Likert scale ranging from 1 (“*completely disagree*”) to 5 (“*completely agree*”). All items in this section are adapted from Stavisky (2020).

**3.2.2. Dependent variables.** The dependent variables are *objective and subjective integration into the digital sphere*. I used a tool developed by Stavisky (2020) to measure both variables. Objective integration was measured using 11 items ( $\alpha = .82$ ). A sample item is “*I am integrating diverse digital tools in my teaching such as Kahoot*”. Subjective integration was measured using seven items ( $\alpha = .85$ ). Sample item is “*I am feeling comfortable when using digital tools in my teaching*”. Again, teachers marked their agreement on a Likert scale ranging from 1 (“*completely disagree*”) to 5 (“*completely agree*”).

**3.2.3. Moderating Variables.** I measure *the school’s innovative climate* using four items based on Ekvall’s tool (1996). Teachers were asked to what extent the school where they teach is “innovative”, “takes advantage of opportunities”, “takes risks,” and “Tries new things” ( $\alpha = .81$ ).

The second moderating variable tested was *digital training* which was measured by three items ( $\alpha = .77$ ). A sample item is “*I have received proper and satisfied training on how to teach digitally*”. Teachers marked their agreement on a Likert scale ranging from 1 (“*completely disagree*”) to 5 (“*completely agree*”).

**3.3. Procedure.** Teachers received a link to a Qualtrics survey through social media (e.g., Facebook, WhatsApp, etc.) and emails. Responses were collected during October and November 2022. Data were analyzed with SPSS version 28.

## 4. Results

In Table 1, I present the means and standard deviations of the study's variables. I also present in the table Pearson correlations between the variables.

**Table 1. Descriptive statistics and Pearson correlations between the study's variables**

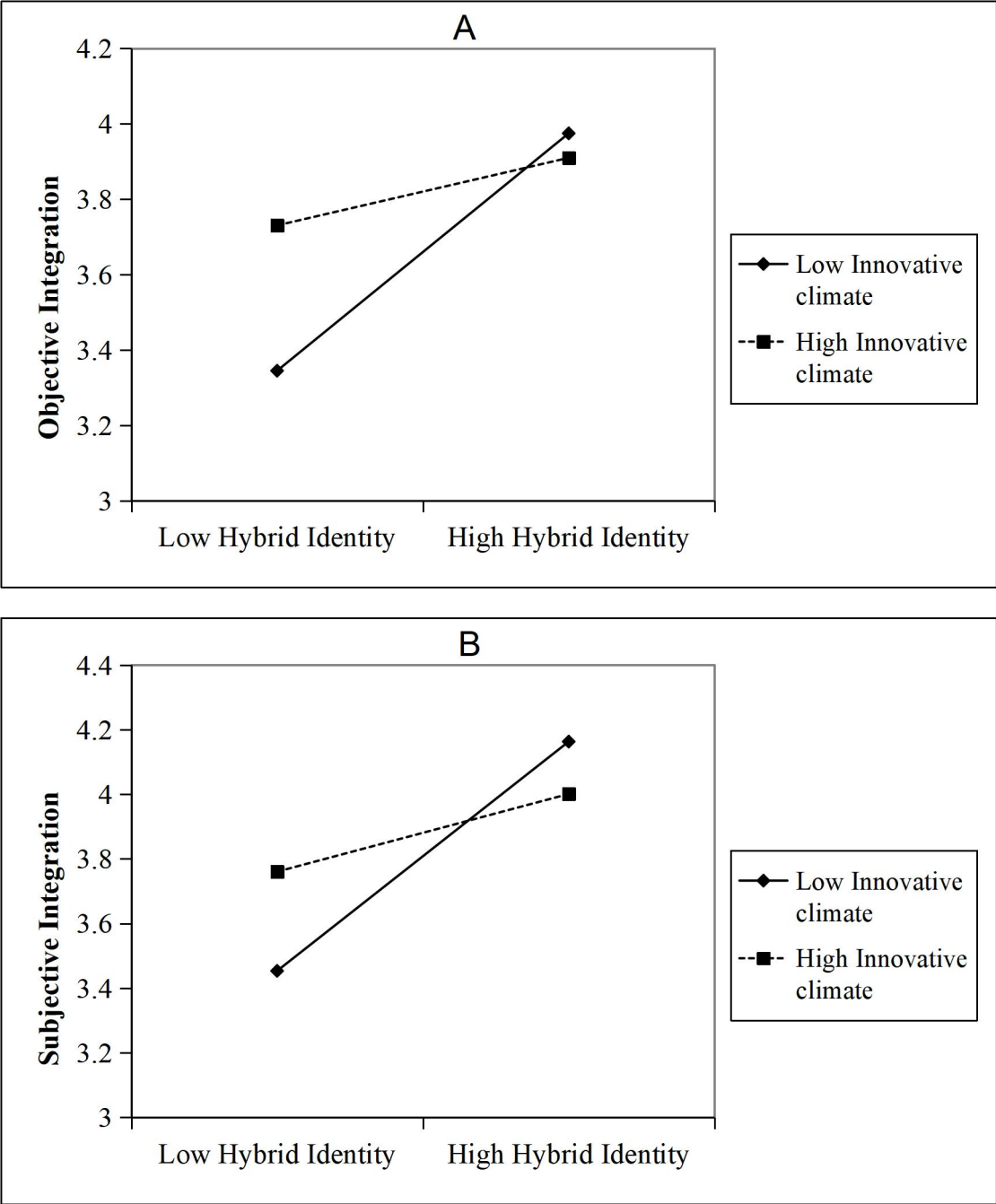
Variable	Mean	SD	1	2	3	4	5	6	7
<b>1. Traditional identity</b>	2.90	0.84	-	-	-	-	-	-	-
<b>2. Digital Identity</b>	3.85	0.58	.17*	-	-	-	-	-	-
<b>3. Hybrid Identity</b>	3.67	0.75	.07	.53**	-	-	-	-	-
<b>4. Innovative Climate</b>	3.34	0.83	.32**	.21*	.23**	-	-	-	-
<b>5. Digital Training</b>	3.34	0.86	.31**	.32**	.24**	.55**	-	-	-
<b>6. Objective integration</b>	3.73	0.67	.06	.55**	.33**	.17*	.30**	-	-
<b>7. Subjective integration</b>	3.82	0.70	.01	.47**	.36**	.11	.31**	.57**	-

*Note:*  $N = 145$ ; \* =  $p < .05$ , \*\* =  $p < .01$ .

As can be seen in Table 1, as hypothesized, both objective and subjective integration are positively correlated with hybrid identity. Objective and subjective integration of teachers into the digital sphere is also positively correlated with digital identity but not with traditional identity. Further, digital training is positively correlated with both types of integration, and innovative climate is positively correlated with objective integration.

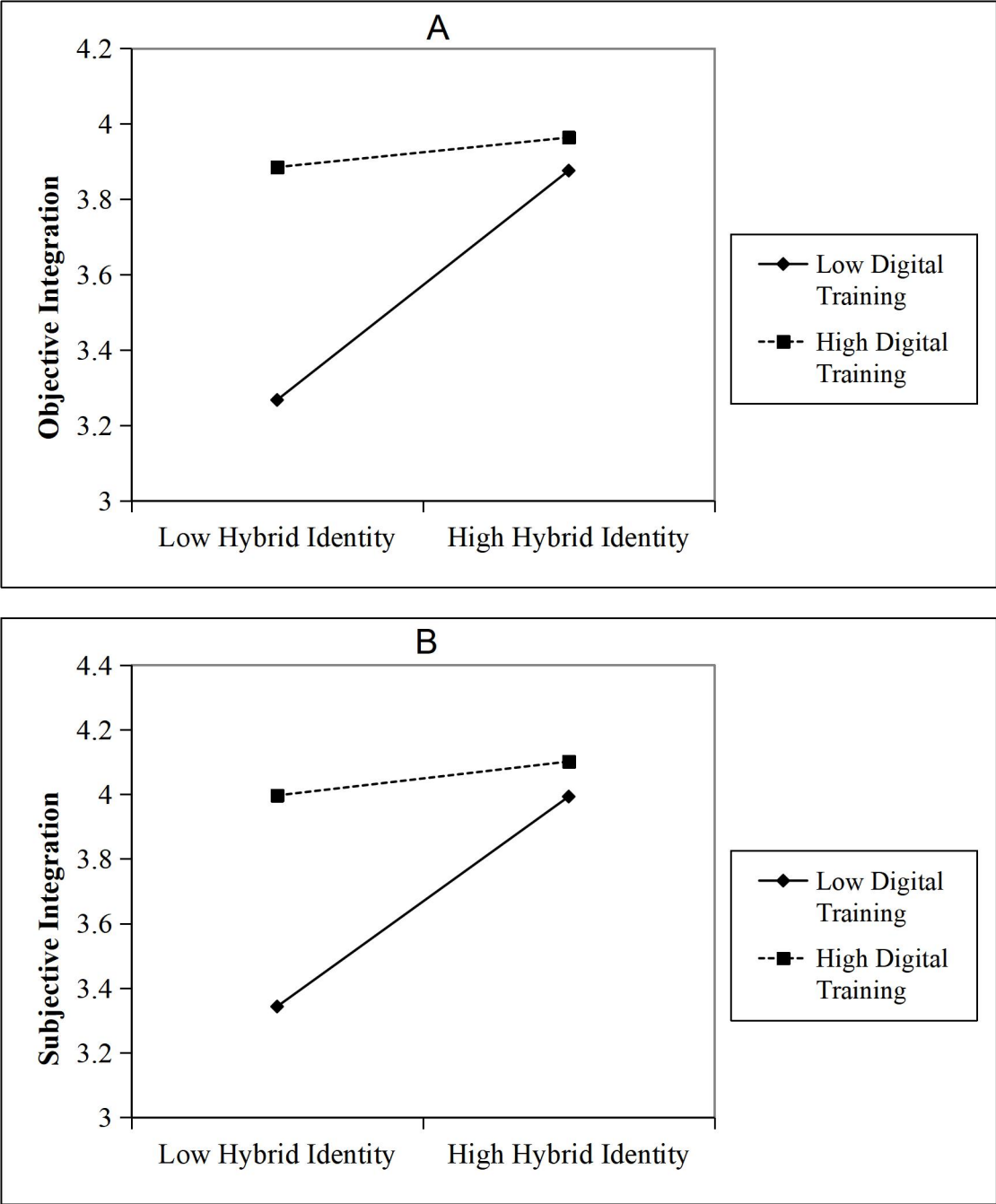
Next, I examined if innovative climate and digital training moderate relationships between hybrid identity and integration to test the second hypothesis. I used the Hayes Process macro for SPSS to test moderations (Hayes, 2018). An interaction effect between hybrid identity and innovative school climate was found on both objective ( $B = -0.18$ ,  $p = .04$ ) and subjective ( $B = -0.19$ ,  $p = .04$ ) integration. Simple slopes analyses revealed that the correlations between hybrid identity and integration are significant only for those teachers who work in schools with a low level of innovative climate (see Figures 1a and 1b).

Figure 1. Interaction between hybrid identity and innovative climate on objective (Panel A) and subjective (Panel B) integration.



Similarly, digital training moderated relationships between hybrid identity and objective ( $B = -0.21, p < .01$ ) and subjective ( $B = -0.21, p < .01$ ) integration. Simple slopes analyses revealed that the effect is significant only for teachers who received minimal digital training (see Figures 2a and 2b).

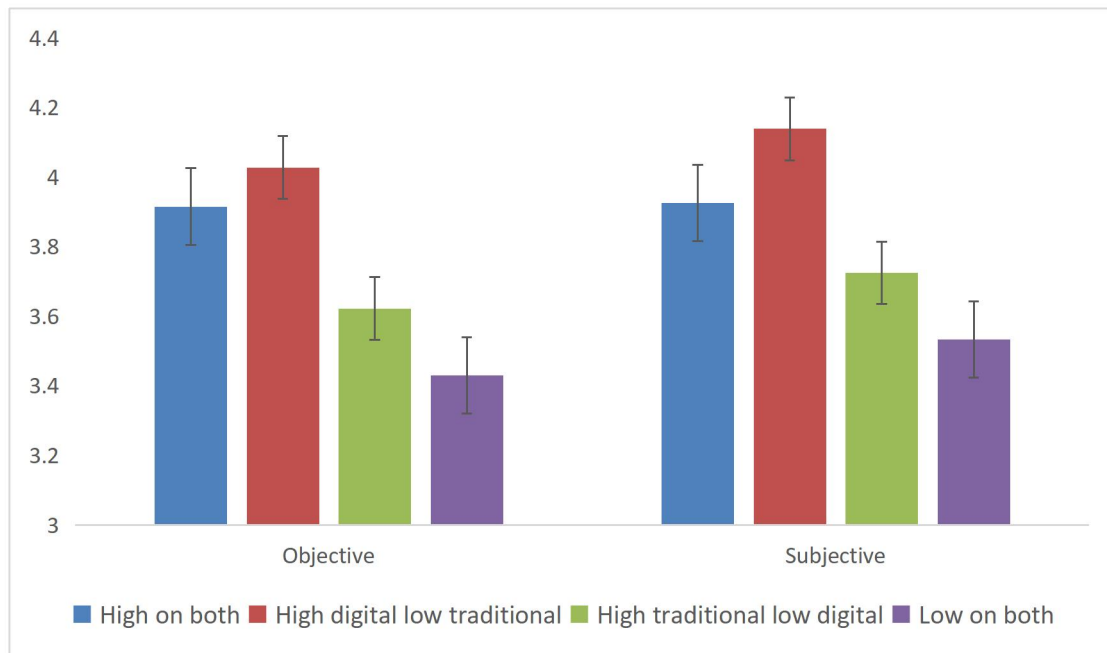
**Figure 2. Interaction between Hybrid Identity and Digital Training on Objective (Panel A) and Subjective (Panel B) Integration.**



Finally, I examined differences in integration between the four identity groups (high/low traditional identity X high/low digital identity). The test revealed differences between the four groups concerning both objective,  $F(3,137) = 6.68, p < .01$ , and subjective,  $F(3,135) = 5.43, p < .01$ , integration. Scheffe’s post hoc analyses revealed that the low traditional and low digital identity teachers report significantly lower objective integration compared to the high digital identity teachers and the high on both traditional and digital identity teachers. Further, the high digital identity and high on both traditional and digital identity teachers reported higher

objective integration compared to the high traditional and low digital identity teachers and low in both identities teachers (see Figure 3). A similar pattern was found regarding subjective integration as teachers with both traditional and digital identities and teachers with low traditional and high digital identity report higher integration than teachers with low digital and high traditional identities and low both identities (see Figure 3).

**Figure 3. Objective and Subjective Integration of Teachers with High and Low Traditional and Digital Identity**



## 5. Discussion

COVID-19 has accelerated digitization processes in teaching, and teachers must rapidly integrate into the digital world from a subjective and objective perspective. If not, they will stay behind their students.

The current study adopts theories and models from research in the field of immigration and assumes that teachers' integration into the digital world resembles the same process of immigrants' integration. Beyond that, it is forced immigration that COVID-19 caused the teachers. From this point of view, the teacher's immigration into the digital world is like another forced immigration - the immigration of 1.5 generation whose parents forced them to leave their motherland and immigrate to another country. Therefore, the current study explicitly adopts previous models of forced migration (Dolberg & Amit, 2022; Remennick & Prashizky, 2019; Stavisky, 2020; Witteborn, 2022).

The current study's findings are in line with previous studies, showing that teachers with a hybrid identity are more likely to be confident in their use of technology and feel more positive about integrating technology into their teaching (Ertmer et al., 2012; Warschauer & Matuchniak, 2010). The current study finds that digital identity, but also a hybrid one (traditional and digital), predicts teachers' integration into the digital world. Thus, it seems that innovative or hybrid identity is crucial for objective and subjective integration into the digital sphere – just as in geographical immigration.

The study focused on hybrid identity and found that its impact is moderated by two context variables: innovative climate and digital training. It was found that hybrid identity is particularly needed when there is a low innovative climate at the school and teachers receive minimal digital training. It may be explained that when the innovative climate is low, and teachers do not receive sufficient digital training, it can be difficult for them to effectively integrate technology into their teaching and educational practices and be integrated by themselves into the digital world (Cai & Tang, 2021; Glazer et al., 2005; Selvaraja & Pihie, 2015). In this scenario, a hybrid identity may be critical because it allows teachers to balance their traditional teaching methods with the use of technology to enhance student learning and engagement. This can help to bridge the gap between the lack of digital training and the need to integrate technology into the classroom, allowing teachers to continue to provide high-quality instruction despite the challenges they may be facing.

Technology integration in education has been a growing trend recently, with many schools and educational institutions moving towards incorporating digital tools and resources into their curriculum and teaching practices. However, this integration's success can depend on various factors, including the level of comfort and expertise teachers have with technology (Masry-Herzallah & Stavisky, 2021b; Olimov & Mamurova, 2022). This research further found that teachers with a hybrid identity (a balanced combination of digital and traditional identities), compared to teachers with low digital identity, will be more likely to successfully integrate themselves into the digital world in terms of actual use of technology and in terms of their perceptions and attitudes towards technology.

In summary, “hybrid identity” suggests that teachers who have a balance of traditional and digital identities or can seamlessly integrate technology into their teaching practices while still maintaining their traditional teaching methods are more likely to succeed in the digital world – even if innovative climate and digital training are lacking. In addition, this research found that objective and subjective integration of teachers into the digital sphere is also positively

correlated with digital identity but not with traditional identity. This finding suggests that while having a balance of traditional and digital identities, or a hybrid identity, may be positively related to teachers' objective and subjective integration into the digital world, the effect of the digital aspect is the strongest. In other words, it suggests that a teacher's level of integration into the digital world is more closely linked to their level of comfort and expertise with digital tools and technology rather than their adherence to traditional teaching methods.

It is worth noting that while having a solid digital identity is positively correlated with teachers' integration into the digital world, it does not necessarily mean that traditional teaching methods have no value. Instead, it suggests that a teacher's ability to integrate technology into their teaching effectively depends on their level of comfort and expertise with digital tools rather than their adherence to traditional methods.

The current research findings also suggest that low traditional and low digital identity teachers may have difficulty integrating technology into their teaching and may not feel comfortable using digital tools. This can result in a low objective and subjective integration with the digital world. This finding corresponds with previous studies that have shown that teachers with low digital identities use technology in a limited and superficial way (Warschauer & Matuchniak, 2010). Furthermore, teachers who lack a solid digital identity tend to have less confidence in using technology and may avoid using it altogether (Ertmer et al., 2012). It may be helpful to provide these teachers with training and resources to help them increase their confidence and competence with technology. It may be helpful to provide these teachers with additional support and resources to help them increase their use of technology in their teaching.

### **5.1. Limitations**

The present study is correlative and, as such, cannot assume causality. Thus, we do not know if hybrid identity impacts integration, integration impacts hybrid identity, or both hybrid identity and integration simultaneously impact each other. A longitudinal study may help answer the question of the direction of relationships. Because the entire data set is based on self-reports, we do not know if teachers reporting high integration in the digital sphere indeed integrate better. Future research should examine reports from different sources; for example, future research could also survey students and principals. Further, future research may also examine objective data such as students' grades.

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