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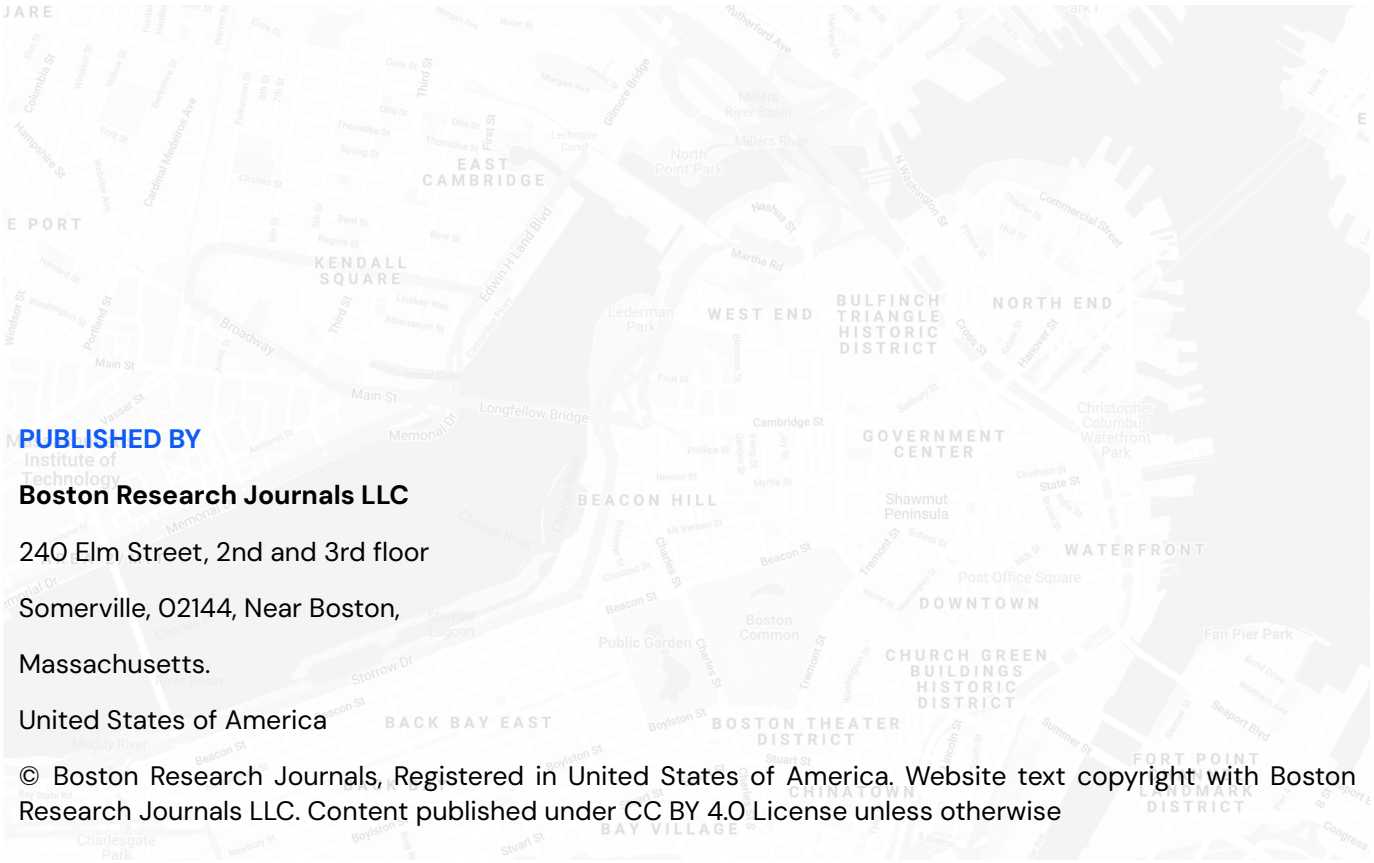

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OPEN ACCESS

An African Diaspora in Medieval Deccan: The Military-Labour Market and its Social Dimensions

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ABSTRACT

This paper seeks to study the social dimensions of the working of the military- labour market in the Deccan region, from the 14th to the 17th century, with special reference to an African diaspora group in medieval India, that is, the Habshis, an ethnic group of Ethiopian extraction. In order to better appreciate the distinctions and commonalities of their trajectory of societal evolution in comparison to other social groups within the contemporary Deccan, a comparative study of the Habshis with another ethnic group, the Marathas, has been attempted as a case study. It is aimed at investigating how two distinct patterns of military-labour engagement, that is, through military slavery in the case of the Habshis, as well as through enlisting the support of freeborn auxiliaries in the case of the Marathas, impacted the social evolution of these two communities, as well as the various dimensions of that impact. Dimensions such as the upward social mobility of these groups, the caste-class location that their rise conferred upon them, the question of gender, as well as how their distinct vintages had an impact on their subsequent demographic development, will be taken up for investigation in this study.

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I. INTRODUCTION

One of the most striking and recurrent features of medieval Indian history is the cyclical rise and fall of empires, a dynamic that profoundly shaped the subcontinent's political, social, and economic structures. This process was far more than a series of mere political turnovers; it had significant and wide-ranging consequences for society at large. Among these, a particularly important effect was the persistent and growing demand for military manpower, which rulers across regions were compelled to meet in order to secure and expand their domains. The Delhi Sultanate provides a notable example: its administrative and fiscal arrangements were closely tied to the maintenance of a large and professional army, creating a structural and continuous demand for military labour drawn from various social and economic strata. With the eventual fragmentation of the Sultanate and the rise of regional polities, competition among emerging centres of power intensified, resulting in frequent conflicts and skirmishes. These inter-state struggles further amplified the demand for armed personnel, thereby expanding the military-labour market and influencing patterns of recruitment, social mobility, and economic organization.

This persistent demand for military manpower also had significant ramifications for economic and demographic structures. To sustain large armies, rulers reorganized agrarian and fiscal systems, often increasing taxation, granting land revenues, and monetizing resources to fund their military apparatus. The Sultanate and subsequent regional powers relied heavily on revenues from agriculture and trade, which shaped production patterns and encouraged the development of local markets. At the same time, the mobility of soldiers, mercenaries, and military officials facilitated demographic shifts, leading to the emergence of settlements around strategic forts, trade hubs, and military encampments. These movements contributed to cultural exchange, urbanization, and the integration of diverse communities into the political and economic life of the region. In this manner, the cyclical rise and fall of empires was not only a political phenomenon but also a catalyst for profound social, economic, and demographic transformations, illustrating the intricate interconnections between warfare, state formation, and broader historical processes in medieval India.

Dirk Kolff has conceptualized the military-labour market as a structured system for the recruitment, sale, and mobilization of military manpower, highlighting its profound and multi-layered social consequences. He demonstrates that the growth of this market in North India had far-reaching implications, influencing both local communities and the highest levels of ruling elites. The expansion of military opportunities reshaped social hierarchies and facilitated the emergence of new elite caste-class groups, such as the Rajputs, Pathans, and Barha Sayyids. The Rajputs, for example, consolidated and burnished their Kshatriya identity through their martial service in regional armies and in the employ of the Delhi Sultanate, while the Pathans, often recruited as mercenary soldiers, translated their battlefield prowess into social and political authority. Similarly, the Barha Sayyids leveraged their Ashraf status and military accomplishments to assert aristocratic claims, frequently serving as kingmakers in the Mughal court and occupying prominent positions in imperial administration. Kolff also emphasizes that the military-labour market exerted a transformative influence on popular religious movements. Peasants, forming a significant portion of the military manpower, were drawn into movements such as Sikhism, which developed a pronounced martial character under leaders like Guru Hargobind and Guru Gobind Singh. Ascetic orders, particularly the Naga Sadhus, similarly adopted militarized forms of organization, reflecting the permeation of martial ethos into religious life. Beyond social and religious spheres, the military-labour market reshaped rural political structures: new rural aristocracies, often linked to military recruitment networks, emerged as dominant actors in local governance, landholding, and socio-economic organization. Villages producing or supporting military manpower frequently acquired strategic importance, and local elites gained authority and prestige through connections with regional or imperial armies. Kolff's analysis, therefore, reveals that the military-labour market was far more than a mechanism for mobilizing armed forces; it functioned as a catalytic force driving profound socio-political, economic, and religious transformations, fundamentally reconfiguring North Indian society during the medieval period.

The substantial and ever-growing demand for military manpower in medieval India was met through two primary mechanisms. The first involved

the institution of military slavery, while the second relied on the recruitment of military auxiliaries—socially mobile groups closely linked to imperial military administrations, who sought to leverage their martial skills as a vehicle for upward social and political mobility. Military slavery, as an institution, had deep roots in the Central Islamic Lands and had attained particular prominence under the Abbasid Caliphate, where slave-soldiers, known as ghulams or mamluks, who distinguished themselves on the battlefield were often elevated to positions of considerable administrative and political authority. This model of military recruitment and organization was subsequently adopted and adapted by successor polities, including the Samanids, Seljuks, Ghaznavids, and Ghurids, all of whom relied on slave-soldiers not merely as a dependable source of armed manpower but also as an influential socio-political constituency. The Delhi Sultanate inherited and further institutionalized this practice, employing Turkish slave-soldiers who combined military service with critical administrative responsibilities, thereby occupying a dual role as both instruments of warfare and agents of governance. Equally significant were the military auxiliaries, composed of socially buoyant groups such as local chieftains, frontier warriors, and regional mercenary bands, who were attached to the imperial military apparatus. These auxiliaries were motivated by the prospect of enhancing their social standing through demonstrated martial competence, often acquiring land grants, titles, or administrative offices as rewards for service. Prominent examples include the Rajput clans, referred to as 'ranagan' (ranas), 'rautan' (rauts) or 'takkaran' (thakurs) in the medieval Indo-Persian sources, who, while initially autonomous, were gradually incorporated as auxiliary forces, providing cavalry and fort garrisons in return for jagirs and political privileges. Similarly, the Khokhars and other Punjabi warrior groups served as auxiliaries during both defensive and expansionist campaigns of the early Delhi Sultanate, their loyalty and effectiveness translating into socio-political leverage in their home regions. The integration of these auxiliaries into the military-labour system had profound social and cultural ramifications for rural society. Villages and regions that supplied or hosted military auxiliaries gained strategic and economic importance, often receiving imperial patronage, revenue exemptions, or enhanced local authority. This process facilitated the emergence of new rural elites, who exercised considerable control over land, resources, and the peasant population, thereby altering pre-existing patterns of local governance and social hierarchy. The military credentials of these groups also enabled them to assert social prestige, often merging martial prowess with claims to aristocratic or quasi-noble status. Moreover, the presence of auxiliaries brought with it new cultural influences—military traditions, martial rituals, and codes of honour—which permeated local society, reshaping communal identities and social relations. In combination with the institution of military slavery, the auxiliary system exemplifies the intricate interplay between military imperatives, social mobility, and cultural transformation in medieval North India. These mechanisms collectively not only addressed the immediate demands of warfare but also produced lasting socio-political and cultural changes, demonstrating how the organization of military manpower became a driving force in the broader historical evolution of the Delhi Sultanate and its surrounding regions.

The conquest of the Deccan by the Delhi Sultanate and the subsequent transplantation of several of its political and administrative institutions into the region, when combined with a series of indigenous social, economic, and cultural transformations already underway in Deccani society, created the conditions for the emergence of new social and military forces. The same dual pattern of military labour engagement that we have seen in northern India, that is, military slavery as well as free auxiliary service, was replicated in the Deccan too. Against this backdrop, the present study seeks to examine the social implications of the military-labour market in the Deccan from the fourteenth to the seventeenth century, focusing on how the recruitment, organization, and deployment of military manpower reshaped contemporary society.

For this purpose, two ethnic communities—the Habshis and the Marathas—have been selected as case studies, as they exemplify two distinct modes of engagement with the military-labour system: one through military slavery, and the other through the enlistment of auxiliary forces. The Habshis, often of African origin and brought into the Deccan as slave-soldiers, illustrate the transplantation and adaptation of the military-slavery model. Rising through the ranks on the basis of their martial skill, some Habshis attained high military and administrative offices in

Deccani sultanates such as the Bahmani and its successor states, acquiring both political authority and social prestige. Their integration into the military and political fabric of the Deccan also facilitated upward social mobility, allowing them to negotiate new forms of elite status, consolidate economic power through land grants or stipends, and influence courtly and regional politics.

In contrast, the Marathas, primarily indigenous to the Western Deccan, engaged with the military-labour system as auxiliary forces, providing infantry, cavalry, and logistical support to various sultanates. Unlike the Habshis, their entry into the military system was largely voluntary and closely linked to local social hierarchies, offering a pathway to social and economic advancement without the formal institution of slavery. Maratha warriors often leveraged their military service to acquire landholdings, exercise influence over village governance, and enhance their caste-class status, ultimately contributing to the emergence of a distinct rural aristocracy embedded within broader Deccani political structures.

By examining these two communities, the study explores the multifaceted impacts of military participation on Deccani society. It investigates how the contrasting modes of recruitment shaped patterns of upward mobility, the reconfiguration of caste-class hierarchies, the negotiation of gender roles within these communities, and the processes of ethnogenesis that informed their demographic development and collective identity over time. Through this dual lens of military slavery and auxiliary service, the research illuminates the complex ways in which the military-labour market served not merely as a mechanism of warfare and state consolidation but as a transformative social force, reshaping the political, economic, and cultural contours of the Deccan between the fourteenth and seventeenth centuries.

II. THE MILITARY-LABOUR MARKET AND SOCIAL MOBILITY

The Deccan between the fourteenth and seventeenth centuries offered significant avenues for social advancement to individuals and groups possessing martial skill and strategic acumen. A clear and direct correlation existed between military service—whether undertaken as a free agent or through servile channels—and the capacity to capitalize on emergent opportunities to achieve upward social mobility. Both individuals and entire ethnic communities could leverage their military contributions to gain recognition, wealth, and political influence, though the transformation of social status was often more historically visible and consequential in the case of collective ethnic groups. By entering royal service as providers of essential military manpower, these actors frequently succeeded in integrating themselves into the ruling strata, attaining positions of considerable administrative, political, and even hereditary authority.

This dynamic is particularly evident in the cases of the Habshis and the Marathas, two politically and militarily prominent ethnic communities in the Deccan during the period under study. Both groups exemplify how engagement with the military-labour market facilitated processes of upward mobility, allowing them to emerge as ruling entities in their own right. The Habshis, largely of Ethiopian origin, whose group nomenclature derived from the Arabic word for Ethiopia or Abyssinia (habash), and initially integrated into Deccani courts as slave-soldiers, demonstrate the potential for servile military labor to translate into socio-political power, with the career of Malik Ambar serving as a paradigmatic example. Through exceptional leadership, strategic insight, and military competence, Malik Ambar rose from servile beginnings to become the de facto ruler and administrator of the Ahmadnagar Sultanate, exercising authority comparable to hereditary nobility and instituting administrative, fiscal, and military reforms that reshaped regional governance. In contrast, the Marathas, primarily indigenous to the Western Deccan, engaged the military-labour market as free soldiers and auxiliaries, utilizing their martial prowess to secure land, wealth, and political standing. The Bhonsle family, in particular, illustrates how free military service could be transformed into dynastic authority, culminating in the consolidation of semi-autonomous rule and the creation of a political and military power base capable of influencing the broader Deccan polity.

The upward mobility of these groups had profound implications beyond individual or group status, affecting the social, political, and cultural structures of Deccani society. Their rise challenged pre-existing caste-class hierarchies, creating new elite formations and redistributing authority and resources within both urban and rural contexts. Habshi and Maratha involvement in military and

administrative spheres facilitated the integration of new martial and cultural norms, introducing practices, rituals, and organizational models that reshaped courtly culture, local governance, and rural social relations. Moreover, these processes of upward mobility and ethnogenesis contributed to demographic changes, as newly empowered groups established settlements, patronized trade and craft communities, and created enduring networks of influence across the region. Collectively, the experiences of the Habshis and Marathas illustrate that the military-labour market in the Deccan functioned not merely as a mechanism for warfare and state consolidation but as a transformative social and cultural arena, wherein martial skill, strategic opportunity, and institutional patronage combined to redefine the contours of power, identity, and societal organization over the long term.

To begin with, we find Habshis, originally introduced in the Deccan as military slaves, well-entrenched in positions of power and influence from the very beginning of the Deccan's political secession from the Delhi Sultanate. Habshi ex-slave noblemen, for example, had already come to occupy important administrative positions in the royal court during the Bahamani Sultanate itself. We are told, for example, that when Ahmad Shah 'Wali' Bahmani made a bid for the crown against his estranged brother at Gulbarga, he was helped to power by some important Habshi commanders of the army. Similarly we are told of several Habshi nobles in Ala –ud –Din Ahmad Bahmani's court. Later on, we even learn of Habshi military slaves going on to become provincial governors; two instances of this development are Khudawand Khan, the governor of Mahur, and Dastur Dinar, the governor of Gulbarga.

With the collapse of the Bahmani Sultanate in the early decades of the 16th century, the geopolitical landscape of the Deccan was altered considerably, with the emergence of five new centres of power, in addition to the tottering Vijayanagara Empire, who were locked in perpetual conflict for mastery over the Deccan. What did not alter, however, was the importance of the Habshi slave-nobles and warlords in this confused political scenario. The Habshi slave-commanders were able to retain their power and influence, and to even utilize their military edge to serve personal political ends, burrowing their way deeper inside the Deccani ruling classes. This much is evident without as much as a shadow of doubt from the contemporary accounts. The rebellion by the Deccani noble, Jamal Khan, during the reign of Ismail Nizam Shah in Ahmadnagar was supported by several Habshi generals of note. We are also told of the flight of Dilawar Khan, the Habshi regent who had risen to become the de facto ruler of Bijapur, to Ahmadnagar in order to seek refuge from his enemies. This example is particularly illustrative, since it shows that the Habshi dominance at court was not something peculiar to the Nizam Shahis, but a phenomenon that had come to exist across all the Deccani sultanates. Moreover, during the outbreak of the succession dispute and the civil war in Ahmadnagar following Burhan Nizam Shah II's death, two Habshi commanders/ amirs in the Deccani noble Ikhlas Khan's faction, Nihang Khan and Habash Khan, had risen to become the kingmakers in volatile political situation, with Nihang Khan even going on to become the Peshwa or the chief minister of the state. Closer to Ambar's own time, his first patron in India, Chengiz Khan, who was himself a Habshi and an ex-slave, had risen to become the Peshwa of Ahmadnagar.

These examples highlight two critical aspects of the socio-political trajectory of the Habshis in the Deccan. Firstly, the rapid upward mobility of the Habshis—from their initial status as military slaves to positions within the nobility—was a long-term process that predates the rise of Malik Ambar. His career, therefore, should not be viewed as an isolated phenomenon but rather as the culmination of an ongoing socio-political trajectory in which successive generations of Habshi military slaves leveraged martial skill and administrative competence to achieve elevated status. Secondly, these cases demonstrate that Habshi military slaves had consolidated their aristocratic status to such an extent that they were no longer content to function merely as subordinate officers or aides to the ruling elite; rather, they emerged as autonomous political actors and kingmakers in their own right. Prominent examples include Dilawar Khan of Bijapur and Nihang Khan of Ahmadnagar, whose careers exemplify the strategic use of military prowess and political influence to pursue self-aggrandizement. By capitalizing on both their martial expertise and their positions within the administrative and military hierarchies, these Habshi figures transformed the very contours of power within the Deccan sultanates, asserting authority that at times rivaled that of the hereditary rulers themselves. This phenomenon underscores

how the intersection of military service, social mobility, and political opportunity facilitated the emergence of new centers of authority, reshaping the political landscape of the region and demonstrating the transformative potential inherent in exploiting the opportunities offered by the military-labour market.

Ambar's own rapid rise after his manumission following his master's death is also noteworthy. This seems to have happened quite early in his career, since the correspondence between the Spanish kings and their factors or viceroys along the Konkan coast dating from the early 17th century already refers to him as 'mellique' (malik) or chief, and reveals that he had already been made the governor of Konkan by then. References are also made in these letters to his growing military might, which may be a potential source of trouble for the Spanish interests along the Konkan coast. Likewise, when the Mughals had invaded Ahmadnagar and already occupied a substantial portion of the Deccan, Sabaji Anant, an influential Marathi notable, nominated Malik Ambar for the position of Peshwa, as it was believed that only he could carry out this difficult responsibility. Ambar's career and his rise from a military slave to a commander and governor, to the premiership of the Ahmadnagar sultanate, to finally becoming the chief power behind the throne is, therefore, also illustrative of this long-continuing process of upward social mobility.

The case of the Marathas, although different from the Habshis in that they were freemen and not military slaves, shows a similar trajectory of an upwardly mobile people, rising into the ranks of nobility through military service to the sultanates of the Deccan. For instance, the names of certain Maratha military commanders appear as early as the reign of the Bahmanis themselves, although in the context of their support to the rebel leaders and the pretenders to the throne. Moreover, as early as the 16th century itself, we see the Maratha chiefs in influential positions within the administrative set-ups of the successor- states of the Bahmanis. For instance, we are told of Burhan Nizam Shah I appointing a Marathi Brahmin, Kawerseen, as his Peshwa, in addition to enlisting the help of several Maratha commanders. Likewise, Ibrahim Adil Shah of Bijapur had replaced Persian as the language of the administration with Marathi, besides the Bijapuri army seeing an increased participation of Maratha bargeers or guerrilla cavalrymen in his reign. All of this evidence points to not only a greater military, but also civil influence of the Marathas in the administration.

Besides, right from the inception of the five Deccani Sultanates, there is evidence pointing towards a rise of the Maratha military commanders up the administrative ladder- from commanding units of the army, they were promoted to become the garrison chiefs of the forts as well as commanders of the royal army itself, with jagirs attached to their positions. This development is a remarkable one, since it shows their transition into a landed aristocracy through military service. There are several examples within the Adil Shahi sultanate, for instance, which reinforce this pattern of upward social mobility through successful military careers. The rise of the Nimbalkar family of Phaltan, from military commanders under the Bahmanis, to the status of the sardeshmukhs of Phaltan, is attested by the Bijapuri state papers, especially the sanads. The Ghatges, who were, likewise, military commanders and held a land grant under the Bahmanis, rose to become the sardeshmukhs of the pargana Maun under Ibrahim Adil Shah. The careers of the Ghorpade, Mane, and Kapse families also display a similar trajectory.

The career of the Bhonsle family also exhibits a similar pattern. Their rise from being sirdars, or freelance military commanders attached to royal armies, to the status of nobility under the Nizam Shahis, and after the liquidation of Ahmadnagar, under the Adil Shahis, fits in with the wider trend of upward mobility. Based on a careful perusal of the Bijapuri state papers, Sir Jadunath Sarkar has plotted the gradual rise of Shahji Bhonsle, the father of Shivaji, under the Adil Shahis to the status of a nobleman or jagirdar.

III. CASTE-CLASS LOCATION, RACE, AND THE MILITARY-LABOUR MARKET

The question of social mobility generated by the expansion of the military-labour market in the Deccan between the fourteenth and seventeenth centuries is deeply intertwined with broader issues of social status. In this context, social hierarchy cannot be understood solely in terms of wealth or political influence; it must also be analyzed through the intersecting dimensions of caste, class, and, particularly in the case of the Habshis, race. The Habshis' trajectory raises critical questions about how martial skill, political authority, racial identity, and social class collectively shaped their position

within Deccani society. Their military prowess and accumulation of political power were instrumental in negotiating social acceptance and elite status, yet these achievements had to contend with prevailing social prejudices, hierarchical norms, and racialized perceptions within the broader polity. Over time, the Habshis' sustained engagement in military and administrative roles facilitated processes of ethnogenesis, enabling them to consolidate a distinct communal identity that was simultaneously elite, martial, and racially marked.

Similarly, the military successes of the Marathas must be understood in relation to their caste-class positioning within the Deccan. Sustained martial service allowed Maratha warriors to assert social prestige, secure land and administrative privileges, and establish semi-autonomous authority in both rural and urban centers. These developments contributed to the formation of new rural and regional elites, reshaping local governance structures and altering traditional hierarchies. The processes through which the Habshis and Marathas navigated the military-labour market also had demographic consequences: Habshi families, through the accumulation of wealth and political power, were able to establish settlements, intermarry, and form enduring networks of influence, while the Marathas' military engagement facilitated the spread of their communities across strategic regions, reinforcing both their numerical presence and their socio-political clout.

Taken together, these cases illustrate that military service in the Deccan was not simply an instrument of warfare or state consolidation, but a powerful mechanism of social transformation. It enabled upward mobility, redefined caste and class hierarchies, and facilitated the creation of distinct ethnic and social identities. We will take up some of these issues for deliberation here.

So far as the question of the Habshis and their social status is concerned, two points are particularly worthy of attention. Firstly, one may note that the strictures and disabilities associated with the institution of slavery were considerably less rigid in the Deccan than in North India. For instance, as per the custom prevalent locally, after the master's death, a slave was considered to be automatically freed, and the technical procedures of manumission remained mainly a matter of formality. Secondly, the structure of Deccan's social hierarchy, although by no means completely flexible, was less rigid than the system prevalent in North India. While the ruling classes in Mughal North India were constituted around the notion of Turko-Persian supremacy and racial chauvinism, and later also the Rajput notion of caste supremacy, the Deccani ruling classes were organized around the race- neutral, ethnicity- neutral ideology of 'salt', that is, the ethos of fidelity to the royal master in exchange for his favours, the metaphor 'having eaten the master's salt' standing for having sworn an oath of loyalty to the master.

These factors, by lending a measure of flexibility to the Deccani ruling classes, facilitated the upward mobility of ascendant social groups and helped them cement their position as members of the ruling classes.

Important qualifications, however, may be made in this regard, and the process, it may be noted, was not altogether without friction. For instance, when Murtaza Nizam Shah's senior 'Persian' wife taunted the daughter of Malik Ambar, who was another wife of the Sultan, she referred to Ambar's daughter as a 'mere slave girl'. This imprecation reveals the continued stereotyping of the Habshis as 'slaves' despite having attained legal freedom and even having secured entry into the ruling classes; in a way, the association of slavery with race continued to prevail.

Nor should it be assumed that the Habshis themselves formed a uniform social group. References are made to Malik Ambar's subordinate soldiers, some thousand Habshi youth (bachchegan), many of whom were also his slaves, fighting under him. Thus, social stratification and differentiation were present among the Habshis themselves as well, in this case, depending on their military standing.

In the case of the Marathas, one also notices an interesting correlation between military success, class, and caste, that is, between military and social statuses. Let us consider the case of the Bhonsles. In the Sanskrit epic poem Shiva Bharat, Maloji Bhonsle, the grandfather of Shivaji, is described as the one hailing from the 'solar race', which is a hint towards his Kshatriya status. This characterization, although retrospective, is corroborated by a letter written by Shahji Bhonsle to the Adil Shahi court demanding rectification of the irregularities related to his jagirs being done by the central administration. In the letter, he claims Rajput origins for his family. From these pieces of evidence, it is

clear that by the 17th century, and even before the birth of Shivaji, the Bhonsle clan was traditionally regarded as having Kshatriya origins. However, what is more interesting is the conversation between Shivaji and the sage Gagabhat immediately before Shivaji's coronation, whose details are provided to us by the Sanskrit eulogy Parnala Parvata Grahan Akhyanam. Gagabhat, on meeting Shivaji, gives two reasons in order to convince Shivaji to adopt the royal insignia. Apart from his Sisodia Kshatriya genealogy, another reason, which, as per him, justified Shivaji's adoption of regalia such as the canopy (chhatr) was his impressive military victories, him having 'overawed the governments of four Emperors'. Here we see how military success and genealogy, or in Weber's terminology, both hereditary and personal charisma, combine to define Shivaji's royal status.

IV. GENDER, POLITICS, DEMOGRAPHY, AND THE MILITARY-LABOUR MARKET

The dynamics of the military –labour market, while exercising their influence on other aspects of the Deccani society, were also closely related to the question of gender. How the military –labour market operated in the Deccan influenced, and was in turn influenced by, the working of gender dynamics.

Hypergamy, or more specifically, marrying into royalty, had emerged as a way of cementing one's newfound political status buttressed by one's military might, and this is particularly demonstrable in the case of Malik Ambar. His daughter's marriage with Murtaza Nizam Shah brought the young sultan, already a protégé of his, under closer control, and thereby served to cement his own position as the Peshwa of the kingdom and its virtual ruler.

The marriage of Malik Ambar's son with Yaqut Khan, a Habshi nobleman of Bijapur, was oriented to similar ends and emblematic of a trend within the Habshi aristocrats of the various Deccani kingdoms of cementing their social status through such intermarriages; such marital alliances, by replicating royal matrimonial alliances, signalled the projection of their status as members of the ruling class.

Finally, the interaction between the military-labour market and gender dynamics played a significant role in shaping the demographic, social, and political trajectories of the Habshi community in the Deccan. As Eaton has demonstrated, the Habshis brought into the Deccan were overwhelmingly male and recruited primarily for military service. The near-total absence of Habshi women constituted a significant constraint on the community's demographic expansion, as natural population growth through endogamous marriage was impossible. This demographic imbalance compelled Habshi men to intermarry with women from local Deccani communities, resulting over time in the gradual assimilation of the Habshis into the broader social and cultural milieu. While these men could achieve remarkable social and political mobility, the lack of a self-reproducing population limited the community's ability to maintain a distinct, enduring ethnic identity. This situation contrasts sharply with the African populations in the New World, where the importation of both male and female slaves facilitated the emergence of locally self-sustaining African-American communities with a persistent ethnic identity.

Additional constraints on the demographic sustainability of the Habshis included the relatively small numbers in which they were imported and the selective nature of their recruitment, which prioritized martial and administrative skill over the establishment of family networks or community cohesion. Moreover, the occupational demands of military service—frequent deployments, campaigns, and postings across different regions—limited the formation of stable, localized Habshi settlements and impeded long-term demographic consolidation. These constraints, however, did not prevent the Habshis from exercising substantial political influence. Figures such as Malik Ambar were able to create extensive networks of loyalty and patronage that extended across sultanate territories, leveraging military and administrative positions to assert authority, influence succession disputes, and shape regional policies. Yet, the absence of a demographically autonomous community meant that this influence relied heavily on the abilities of exceptional individuals rather than a broad-based Habshi constituency, making their political power contingent and personalized rather than institutionalized.

In contrast, the Marathas, as indigenous inhabitants of the Deccan, were not constrained by demographic limitations or gender imbalances. Their population was self-reproducing, allowing for natural growth and the continuous transmission of social, cultural, and martial traditions across generations. This internal demographic stability enabled the Marathas to consolidate their influence more broadly and institutionally, rather than

depending solely on the exceptional abilities of a few individuals. The community could maintain continuity in both rural and urban contexts, establish enduring networks of power and patronage, and create semi-autonomous political structures that endured over decades. Furthermore, their status as native actors in the Deccan meant that their social mobility, landholding, and political authority could be negotiated within an already familiar social and cultural framework, facilitating a more sustainable and collective form of power consolidation. Unlike the Habshis, the Marathas' demographic self-sufficiency and rootedness in local society allowed them to transform military success into long-term social and political dominance, ultimately shaping the broader structure of Deccani polity. The opposite experience of the Habshis, thus, illustrates how demographic constraints, coupled with gender imbalances and the exigencies of military service, shaped not only patterns of social integration and assimilation but also the structure, durability, and nature of political power among immigrant military communities in the Deccan. Their trajectory demonstrates that while military skill could facilitate extraordinary upward mobility and temporary dominance, sustainable political influence often required a demographically stable and self-reproducing population, which the Habshis lacked.

V. CONCLUSION

The study of the Habshis and the Marathas as pivotal actors in the Deccan's military-labour market between the fourteenth and seventeenth centuries reveals the profound social, political, and cultural transformations engendered by military service in early modern South India. Far from being limited to the realm of warfare, engagement with the military-labour system operated as a key mechanism for negotiating social mobility, reconfiguring caste and class hierarchies, and mediating the intersections of race, gender, and ethnic identity. The upward mobility of the Habshis, despite the demographic and gender constraints they faced, illustrates the potential of military skill and political acumen to transform marginalized groups into influential actors capable of shaping the political landscape. Similarly, the Marathas' engagement as indigenous auxiliaries demonstrates how native communities leveraged military prowess to consolidate socio-political authority, establish durable networks of power, and achieve long-term demographic and cultural continuity.

The juxtaposition of these two groups highlights the heterogeneous and fluid nature of Deccani society, a dynamic "melting pot" in which diverse social processes operated simultaneously, intersected, and mutually reinforced each other. The interconnection of military service, social status, ethnicity, and gender underscores the necessity of studying social phenomena as interdependent rather than in isolation, allowing for a more nuanced understanding of the forces that shaped the region's historical trajectory. Moreover, the experiences of the Habshis and Marathas reveal the dual role of the military-labour market as both an instrument of state power and a driver of social transformation, demonstrating how opportunities for upward mobility could be structured, exploited, and institutionalized across time.

In sum, the examination of these communities underscores the transformative potential of military engagement in shaping social hierarchies, political authority, and cultural identity in the Deccan. Their histories exemplify the complex interplay between individual agency, group strategies, and structural forces, offering valuable insights into the broader dynamics of early modern South Indian society. Future research may further explore how these processes influenced subsequent political developments, patterns of ethnogenesis, and the consolidation of regional polities, thereby deepening our understanding of the enduring legacy of the military-labour market in shaping the social and political landscape of the Deccan.

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RESEARCH ARTICLE BY BOSTON RESEARCH JOURNALS, UNITED STATES OF AMERICA

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Early History of a Francophone Bi-Science "Information and Communication Sciences" and its Society in France

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ABSTRACT

As new academic disciplines, information and communication sciences, like any new discipline, have faced difficulties integrating into the broader scientific community. In France, they have ultimately settled into the category of interdisciplinary fields. Their binary structure — information science and communication science—has proven to be somewhat unequal. The scientific community and the journal that represents them also reflect this perception.

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I. INTRODUCTION

In the seventies, in their academic expression, information and communication sciences were classified by the French Ministry of Education, for the purposes of recruiting and promoting academics, within the Humanities group of the National Council of Universities (CNU). Information and communication thus became, on the margins of the humanities, two still somewhat vague concepts, predominantly physical and social sciences. Despite a bleak past in the camps of Political oppression exercised by the French Ministry of Information (sic) until 1974 and in those of the psychoanalytic diktats of communication gurus, the new potentials held by these concepts were beginning to be perceived.

They relied on the formidable rise of media and information databases, a new field of application for computer science and telecommunications. But an academic discipline encompassing them found little favor with literary

specialists and little place among the traditional disciplines. In 1982, thanks to the political upheaval brought about by progressive forces, academic disciplines were also shaken. And alongside the monolithic blocks of traditional, less open-minded disciplines (Cf. hierarchy of sciences of the philosopher Auguste COMTE), the new group of interdisciplinary disciplines emerged. It was within this group that we managed to place "information and communication sciences" alongside "education and training sciences", "epistemology and history of science and technology", "regional cultures and languages", and "sciences and techniques of physical and sporting activities". "Scandal!" exclaimed some. And it took the tenacity of the Ministry of Education to calm everyone, angry at having to leave the fold of the Humanities. But it was not possible to create, as is customary in other academic departments, a sub-section of information science and a sub-section of communication science that would have taken into account the specific nature of the two fields. The quantitative dominance exerted by communication professionals and the scientific invisibility of documentation professionals prevented a balanced development of activities in information science. It is worth recalling, for example, that within the French Society for Information and Communication Sciences (SFSIC), during national congresses, information science was allotted a brief session at the end of the congress, valiantly organized by the head of the cancer information database, "Cancernet." The dual statute of the discipline " Information and Communication Sciences (SIC)" is therefore an anomaly in the global scientific landscape. Everywhere else, and especially in the English-speaking world, information science and communication science are distinct.

II. RESEARCH

Thus, it is the "info-com" specialists, experts in communication, who have dominated and continue to dominate the field. The "info-doc" specialists, experts in information systems and documentation, have received little attention, probably due to their decidedly professional and less scientific approach. Consequently, the creation of the Info-Doc master's programs in 1990 did not generate much enthusiasm within the Info-Com community. It took the proactive policy of the Ministry of Education to stimulate, within the framework of research programs, the creation of research teams, the organization of summer schools and Anglo-French forums in information science, the support for the organization of conferences, and the launch in 1985 of the first electronic journal in information science, the "Journal-Revue de Science de l'information".

"Info-Com" studies benefited from the aura of a number of gurus and the vogue for "communication." These were philosophers, political scientists, sociologists, economists, etc., who were highly visible in the media and carried a strong ideological weight[1]. In a prolific body of work, ranging in quality from popular science books to scholarly articles, one can observe the epistemological contortions of those who advocate combining the words "Info" and "Com." For example, those who suggested that it was appropriate to henceforth use the phrase "Information-Communication" with a dash (-) and not a hyphen (—). What an audacious conceptualization of the epistemological status of the concept info-com! Ten years later, they still lamented that the use of the hyphen was far from widespread, the confusion with the hyphen persisting. Other contortions of sociologists lacking technical expertise and fearful of communication technologies include those concerning "social use," a redundant concept, a pretext for verbose literature. Why not simply "use"? Since use is always a social construct, as they themselves acknowledge.

III. TRAINING

What about professional training in both sectors? Librarian and information specialist training remained very traditional. Let's not forget that the librarian is called a "conservateur". Information science has little influence, as it was ignored by educational leaders, who were first trained in cataloging at an old school named ENSB (Ecole Nationale des Bibliothèques). We encountered some lengthy difficulties in

[1] The National Council of Universities decides on individual measures relating to the qualification, recruitment, and career of university professors and lecturers. The elections of its members are held on union lists strongly politicized on the left (SNESUP-FSU, SGEN-CFDT) and on the right (INTERSYNDICALE SUP'RECHERCHE, Qualité de la Science Française). In addition, there are members appointed by the government.

incorporating information science (SI) into its name and curriculum. From ENSB, it became ENSSIB, the National School of Information Science and Libraries. In France, libraries, documentation centers, and museums are still not as well-regarded for their accessibility as Anglo-Saxon libraries and museums (perhaps a lingering memory of the nightmarish library in "The Name of the Rose" by Umberto Eco). As for journalism training, fourteen programs are recognized by the profession. Their model is quite technical, "the medium is the message," and the theoretical component is too limited.

IV. LEARNED SOCIETY

Let's now leave the academic sphere and turn our attention to the learned society that represents information and communication sciences: the French Society for Information and Communication Sciences (SFSIC). Founded in France in the 1970s by three academics, it aimed to represent this new scientific field within the Humanities. Since 1974, it has brought together those involved in teaching and research in Information and Communication Sciences (SIC). As an association and learned society, it supports and promotes the work of this scientific community through its scientific events, publications, and its support for initiatives developed within the disciplines of Information Science and Communication Science.

While admittedly very literary in its early days, it was also quite conservative. The highly militaristic hierarchy of the academic ranks, some first-class, others second-class, was replicated identically in the learned society. At the annual congress, the elections of the Society's officers were conducted according to this framework. Hence, the astonishment of new members, such as those from disciplines where scientific democracy was practiced and where scientific expertise transcended hierarchical barriers. This provided a striking example of the university mandarin-like disciplines still at work in the French academic world. And at work also in an institute like CELSA and, of course, in the CNU (National Council of Universities), both headed, in the eighties, by a reserve officer.

The congresses were the Society's primary scientific activity. Since 1978, eighteen congresses have been held. Being francophone and therefore regional, their international impact has remained limited. The Society also published, for many years, since 1978, a newsletter, "La Lettre d'inforcom," which has since become "Les Cahiers de la SFSIC." Before finally launching, in 2012, 34 years after its founding moments, a scientific journal, the "Revue Française des Sciences de l'Information et de la Communication," in French. A small, regional journal, like the science of the same name.

V. CONCLUSION

In conclusion, in France, no major information science, no major communication science, no international journal in information science, and no international journal in communication science. But rather, "provincial" sciences and a "provincial" journal, as Eugene Garfield, president of the "Institute for Scientific Information," pointed out in 1976 in the journal "La Recherche," in a provocative article concerning French science, "Is French Science Too Provincial?"

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Validity and Reliability of the KORR Metabolic System During Submaximal and Maximal Exercise

Craig E. Broeder[δ], Anton Simms[θ], Aiste Petraityte[ε], Alexander H.K. Montoye[ρ]

ABSTRACT

This study compared the KORR CardioCoach Pro metabolic system to the COSMED clinical-research system during submaximal steady-state exercise and maximal aerobic capacity. Eighteen adults (50.3 ± 11.9 yrs old, 78.6 ± 10.6 kg, 25.6 ± 8.0 % body fat, and cardiovascular fitness rank equaled 83rd percentile) completed the validation phase, while nine subjects were randomly assigned to the test-retest phase. Metabolic data were collected simultaneously with both systems. VO2 max (mls • kg • min-1) was not significantly different between systems (COSMED = 40.3 ± 5.7; KORR = 41.5 ± 5.8; ES = 0.21). There were no between-system differences for max ventilation, tidal volume, respiration rate, carbon dioxide production, or respiratory exchange ratio. The intra-class correlation (ICC) and regression slope between the two systems showed excellent agreement (ICC: 0.95; r-squared = 0.94; p = 0.0001; SEE = 1.4 mls • kg-1 • min-1). During submaximal exercise, no statistical differences between systems were observed. The intra-class correlation (ICC) and regression slope between the two systems showed excellent agreement (ICC: 0.92; r-squared = 0.937; p = 0.0001; SEE = 0.058 mls • kg-1 • min-1). These results indicate the KORR metabolic system accurately measured metabolism during both submaximal and maximal cycling.

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I. INTRODUCTION

Over the last several years, more affordable metabolic testing systems have been used to monitor a person's fitness and wellness programming outcomes (Montoye et al., 2020; Tsekouras et al., 2019). These systems simplify the calibration and setup process, so testing is easily performed in fitness, wellness, and nutritional centers. In the past, assessments of resting metabolic rate, maximal oxygen uptake, and

metabolic efficiency were done in either university-based research or medical center labs.

With advances in technology, newer systems may provide cost-effective and accessible testing options for general fitness/wellness clients wanting to improve cardio-respiratory capacity (i.e., VO2 max), energy efficiency profiles (fat versus carbohydrate use at rest and/or exercise), or understanding metabolic needs during exercise at various training zones. Additionally, these systems, through post-testing data processes, are focused on helping practitioners customize a client's fitness and preventive health goals while at the same time easily evaluating the client's real-time progress for personalized adjustments, i.e., improvement in fitness leading to changes in a person's training zone targets (Capostagno et al., 2021). From a health perspective, individuals interested in losing weight or improving body composition, metabolic testing may help fitness/health experts provide a more individualized exercise and dietary intake program that fine tunes the balance between macronutrient intake, dietary composition, and the person's energy expenditure patterns like current trends in personalized medical treatments (Abul-Husn & Kenny, 2019; Braig, 2022; Goetz & Schork, 2018). Finally, maximal oxygen uptake testing provides clients with important information about their current cardiovascular disease risk based on their maximal metabolic equivalent level achieved (METS) at the time of testing. Previous research shows that maximal oxygen uptake values are strong predictors of premature cardiovascular events and death (Ross et al., 2016; Swainson et al., 2019). Correspondingly, previous exercise behavioral research suggests that providing individuals real-time health and physical activity information may be a powerful positive motivator of current and future health behaviors (Ferguson et al., 2022; Singh et al., 2022). However, it is equally important that the use of this information needs to come via accurate and reliable testing so that the information is properly actionable for the client (Shei et al., 2022).

While metabolic testing can provide valuable fitness and health information, the data collected is only valuable if the metabolic system and process are accurate and reliable. We previously showed that when compared to standardized research-based oxygen uptake testing results, initially, affordable metabolic testing systems in fitness clubs produced very inconsistent results (Broeder, 2014). However, more recent research with affordable metabolic systems suggests that when testing follows proper population-specific protocols (Tsekouras et al., 2019) and proper graded exercise testing guideline procedures (ACSM, 2021), newer systems can provide accurate and reliable data. Additionally, other lower-cost systems specifically designed to measure resting metabolic rate have also been shown to be reliable and valid (Nieman et al., 2006; Nieman et al., 2005; Vandarakis et al., 2013).

This study, in a healthy active adult population, compared the KORR CardioCoach Pro metabolic system to a previously validated medical research system (Nieman et al., 2013) developed by the COSMED corporation (Chicago, IL) during submaximal steady-state exercise and for maximal aerobic capacity determination. The COSMED comparison system was recently used in a similar metabolic system comparison study (Tsekouras et al., 2019). Although the KORR metabolic systems are currently used in many fitness centers, weight loss facilities, and even universities, there has not been an independent external CardioCoach Pro study conducted comparing this system to a research-grade validated device.

II. METHODS

Participants

Subject participation was conducted following the ethical principles stated in the Declaration of Helsinki (World Medical, 2013), which includes ethics approval obtained before initiating the study, consent forms taking into consideration the well-being, free will, and respect of the participants, and respect of privacy. Prior to starting the study, all study protocol items were approved by Pearl IRB, which is an independent, accredited Institutional Review Board by the Association for the Accreditation of Human Research Protection Programs. This research was carried out in accordance with the ethical standards of the International Journal of Exercise Science (Navalta et al., 2019). Each subject completed the study's consent form and a medical and physical activity history form. If a subject met all inclusion criteria, they then received a trial-testing schedule.

To participate in the study, all subjects were classified as low risk for coronary artery disease according to the American College of Sports

Medicine (ACSM) Graded Exercise Testing guidelines between 18 and 65 years of age (ACSM, 2021). Subjects were required to be currently active (exercise 3-5 times per week on a regular basis over the 6-months prior to starting the study). All subjects were free of metabolic disease (e.g., diabetes), acute infection (e.g., flu), COVID-19, chronic inflammatory conditions (e.g., rheumatoid arthritis), lung disease (e.g., COPD or restrictive lung), and were currently not taking medications to treat hypertension. Pregnant females were excluded from the study. Because initial subject screening items included bioelectric impedance body composition assessment, individuals with implanted electronic devices were excluded from participating in the study. Subjects were recruited from the local area population. Twenty-one subjects volunteered to participate in the study. Of those, 18 subjects (9 females; 9 males) completed the validation portion of the study. Two subjects did not complete the study due to schedule changes (i.e., lack of time), and one subject did not meet all pre-screening criteria. Ten subjects were randomly selected to participate in the test-retest reliability aspect of the study. One subject did not complete this portion of the study due to a schedule change and lack of time, leaving nine for the reliability analysis.

III. PROTOCOL

Body composition was assessed using InBody's 570 multi-frequency bioelectrical impedance (BIA) system (InBody, Cerritos, CA). Each subject was instructed to abstain from solid food for 4 hours prior to testing. Subjects were instructed to drink 12-16 oz of water two hours before testing to ensure proper hydration status as recommended by the manufacturer. If testing took place in the morning, subjects did not strenuously exercise the evening prior. For afternoon or evening testing, subjects did not perform any strenuous exercise the day of testing.

Maximal aerobic capacity was determined using a standardized linear ramp cycling protocol with 3-minute stages, hereafter referred to as the VO2 max test. The starting workload was 75 watts (Stage 1). With each subsequent stage, the workload increased by 25 watts every 3 minutes until each subject reached volitional fatigue. All testing was performed using a Tacx Smart Bike system, which was controlled by an ANT+ ergometer mode computer system. The Tacx Bike (Garmin, USA) testing protocol was controlled using a computer program designed by Rouvy (Czech Republic) that automatically adjusts the force required based on a subject's individual cadence pattern (i.e., low versus high cadence subject), target power independent of a person's preferred cadence.

Submaximal workload determinations were established using the VO2 max protocol data results. The submaximal workloads consisted of three 6-minute stages set at 60%, 75%, and 90% of each person's max watts achieved during the VO2 max test. Maximal watts were determined using a weighted mean that included the last stage a cyclist completed and the fraction of the next stage up to the final end point (e.g., Stage 7–225 W at 180s and Stage 8–250 W at 30s = 229 W at VO2 max). As with the VO2 max test, submaximal workloads were programmed and controlled through the Rouvy cycling software as described above.

Exercise testing trial data were collected each day using identical testing set-up procedures and methods. Testing occurred at the same time of the day ± 30 minutes across all submaximal and maximal trials to avoid diurnal effects on metabolic rate. Subjects were asked to avoid strenuous exercise 24 hours prior to testing and maintain the same dietary intake pattern on the days prior to and the day of testing. These procedures allowed us to minimize the effects that diet and exercise can have on metabolic measurements 18-24 hours prior to exercise measurements (Broeder et al., 1991). Prior to starting the specific trial protocol for a given day, each subject completed a 20-minute standardized cycle ergometer warm-up based on their respective fitness.

The two metabolic systems (COSMED and KORR) were calibrated as recommended by each manufacturer just prior to the start of each subject's trial. The COSMED system calibrations required the flow sensor and gas sensors to use a semi-automated process to accurately measure volume, O2, and CO2 values during the trials based on known calibration volume (3-liter syringe X 6 full breath simulations) and a gas standard calibration process using O2 = 16% & CO2 = 4% concentrations. In contrast, the KORR system uses a totally automated calibration process. The flow sensor was pre-calibrated at the factory, while the gas sensors were pre-calibrated at the factory and were then automatically pre-test calibrated using a room air sensor zeroing process for both the flow

and gas sensors. Once the calibration process was completed, the metabolic collection masks for both

systems were secured on each person as shown in Figure 1. Next, each subject sat on the cycle ergometer at rest for 2-3 minutes to ensure metabolic variables stabilized prior to starting the exercise protocol. Heart rate, ventilation, tidal volume, respiratory rate, watts, oxygen consumption (VO2), carbon dioxide production (VCO2), and respiratory exchange ratio (RER; VCO2/VO2) data were continuously recorded on both systems simultaneously for each stage during both the submaximal and maximal exercise trials.

Figure 1 - Mask Set-Up For Simultaneous Data Collection on Both Systems

For the submaximal exercise trials, based on previous pilot data, the mean of minutes 4-6 (steady-state values) was used at each respective workload for the between (validity data) and within (reliability) system comparisons. For the maximal oxygen uptake trials, VO2 max was defined as achieving the three following criteria: a plateau in oxygen uptake (≤ 1-2 ml/kg) with increasing workloads, RER ≥ 1.05, and a maximal heart rate ± 5 beats/minute of each subject's age-predicted maximal heart rate (Tanaka et al., 2001).

IV. STATISTICAL ANALYSIS

Data are presented as mean ± standard deviation (SD) in all tables and within the Results section. All summary figures are presented as the mean ± SEM. For maximal effort data, metabolic and pulmonary data were analyzed using t-test procedures. Submaximal data were analyzed using two-way repeated-measures ANOVA. Tukey's post-hoc procedures were used to determine where statistical differences occurred (i.e., VO2 at 60% vs. 75% of max). For the test-retest comparisons, a repeated measures ANOVA model was used to compare within and between systems at each respective submaximal measurement period. Cohen's d effect size (ES) procedures were used to determine the magnitude of the difference for each respective comparison when appropriate. Cohen's d measures the difference between two means divided by the pooled standard deviation of each mean. The effect size descriptors used were very small = 0.01, small = 0.20, medium = 0.50, large = 0.80, large = 1.20, and very large = 2.0. In addition, to compare the two systems, intra-class correlation and regression analyses, Bland-Altman plots with bias and limits of agreement (LOA) analyses were performed. A power analysis was performed to find a significant correlation coefficient between systems, ranging from 0.80 to 0.95, p-value = 0.05, power value (1-ß) = 80%, and sample size = 16

subjects. Finally, the data were analyzed using Prism 9.4.1.

V. RESULTS

Subject and fitness performance characteristics (Tables 1 & 2) are presented for all subjects and compared to a randomly assigned test-retest subject group. There were no statistical differences observed in physical or performance-related characteristics between the groups.

Table 1 - Subject Physical Characteristics

Characteristic	All Subjects (m=9; f=9) Mean ± SD	Test-Retest (m= 4; f=5) Subjects	Between Group P-value
Age	50.3 ± 11.9	50.7 ± 11.3	NS
Height (meters)	1.72 ± 0.08	1.70± 0.07	NS
Body Weight (kg)	78.6 ± 10.6	78.6 ± 8.5	NS
BMI (Wt/Ht^2)	26.7 ± 3.12	27.3 ± 3.14	NS
Body Fat (%)	25.6 ± 8.0	26.5 ± 8.7	NS
Lean Body Mass (kg)	58.6 ± 10.0	57.7 ± 7.5	NS
Skeletal Muscle Mass (kg)	32.8 ± 6.0	32.3 ± 4.40	NS

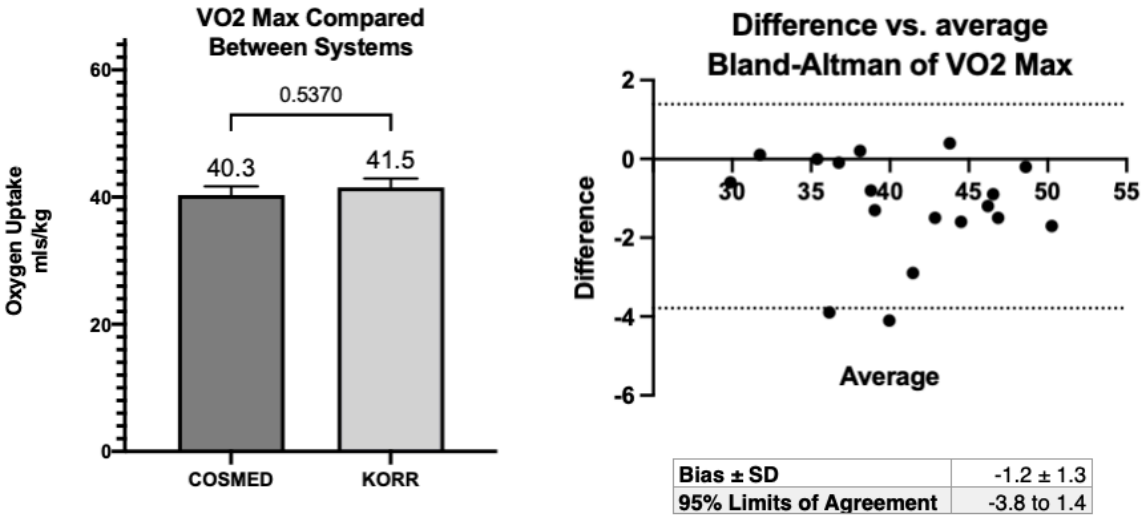
Table 2 - Baseline Fitness Performance Characteristics

Characteristic	All Subjects (m=9; f=9) Mean ± SD	Test-Retest (m= 4; f=5) Subjects	Between Group P-value
Ve max (liters • min^{-1})	117.0 ± 25.9	113.0 ± 25.6	NS
VO_2 max (mls•kg^{-1}•min^{-1})	40.3 ± 5.7	38.9 ± 5.7	NS
VO_2 max (liters • min^{-1})	3.150 ± 0.528	3.031 ± 0.361	NS
VCO2 max (liters • min^{-1})	3.345 ± 0.535	3.240 ± 0.405	NS
RER (VCO_2/VO_2)	1.07 ± 0.03	1.07 ± 0.10	NS
Max Watts Achieved	224 ± 44	207 ± 35.2	NS

Maximal exercise comparisons (Figures 2) between systems showed there were no significant differences in oxygen uptake for all subjects combined (COSMED = 40.3 ± 5.7; KORR = 41.5 ± 5.8; ES = 0.21) The intra-class correlation (ICC) and regression slope between the two systems showed excellent agreement (ICC: 0.95; r-squared = 0.94; p = 0.0001; SEE = 1.4 mls • kg-1 • min-1).

The Bland-Altman analysis showed a Bias ± SD equaled -1.2 to 1.3 with a 95% LOA = to -3.8 to 1.4. Furthermore, there were no significant differences observed between the systems for maximal ventilation in liters • minute-1, tidal volume in liters • minute-1, maximal respiratory rate in breaths • minute-1, and VO2 max & VCO2 max in liters • minute-1, or RER values (Figure 3).

Figure 2 - Maximal Oxygen Uptake (mls · kg^{-1}) Comparisons Between Systems



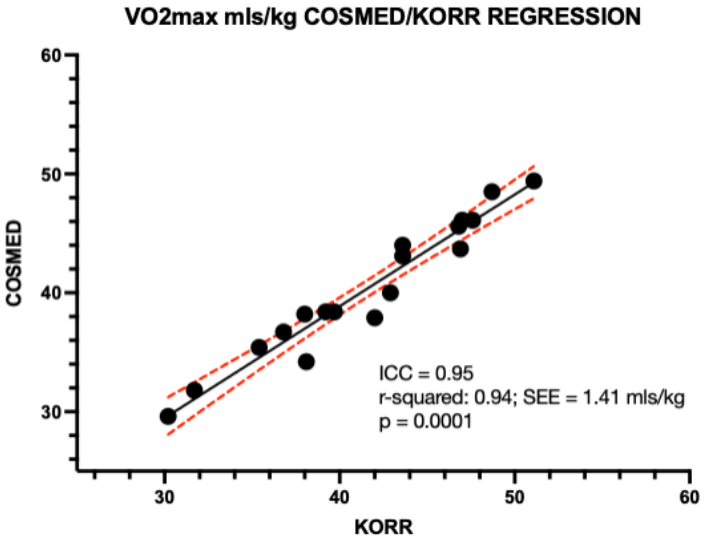
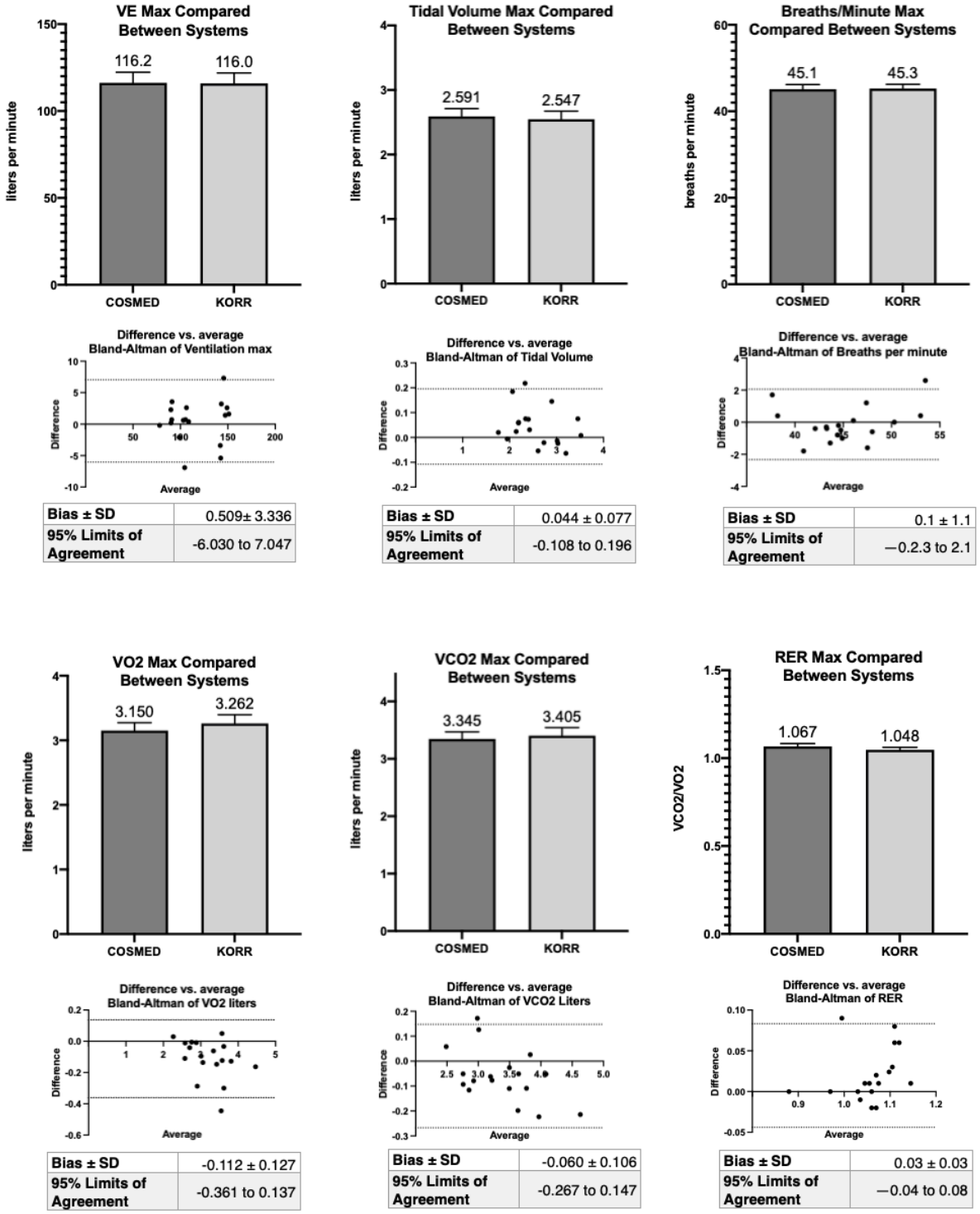
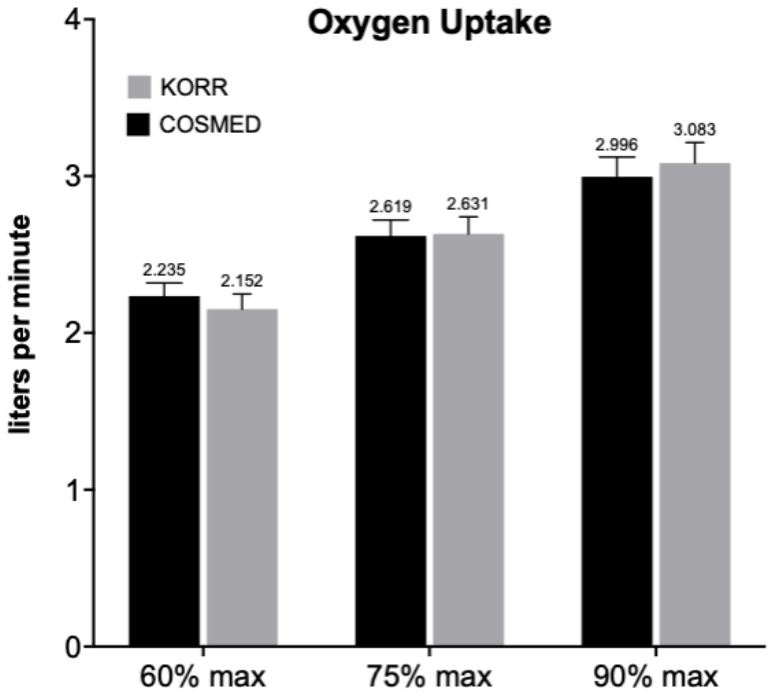


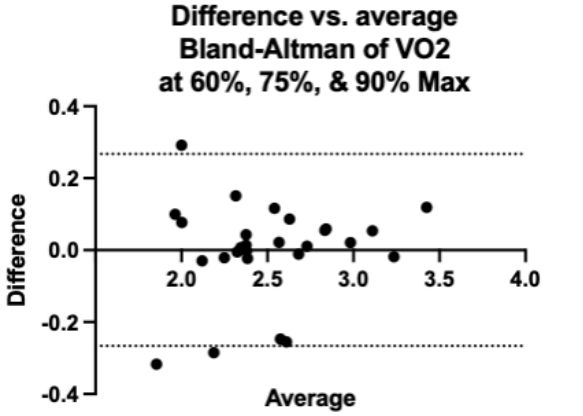
Figure 3 - Maximal Pulmonary and Oxygen Uptake System Comparisons



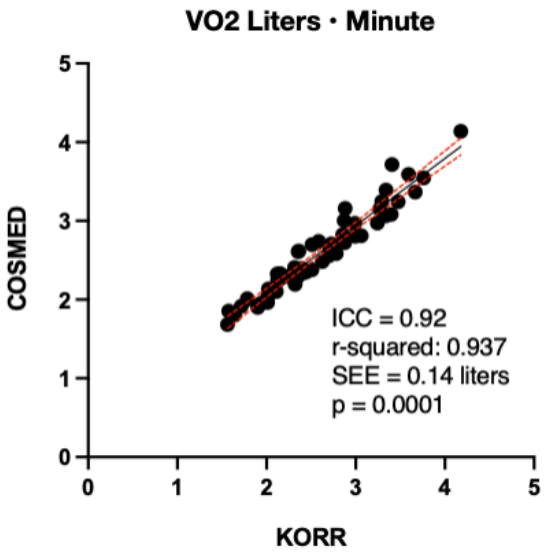
Submaximal exercise comparisons (Figure 4) between system comparisons showed there were no significant differences observed in oxygen uptake in liters per minute. The intra-class correlation (ICC) and regression slope between the two systems showed excellent agreement (ICC: 0.92; r-squared = 0.937; p = 0.0001; SEE = 0.058 mls • kg-1 • min-1). The Bland-Altman analysis showed a Bias ± SD equaled 0.00 to 0.14 with a 95% LOA = to - .27 to 0.27.

Figure 4 - Submaximal Oxygen Uptake (liters • min-1) Between System Comparison





Bias ± SD	0.00 ± 0.14
95% Limits of Agreement	-0.27 to 0.27



Submaximal test-retest results (Table 3) within and between each of the system comparisons showed no significant differences observed at any of the three exercise workloads for VO2 in mls • kg-1 • or liters • min-1, VCO2 in liters • min-1, or RER values. Using the overall submaximal test day VO2 (mls • kg-1 • min-1) mean of each trial and system, the within-system mean difference during submaximal effort day 1 versus 2 was 2.5% and 1.9% for the COSMED and KORR systems, respectively. For VCO2 (liters • min-1), the within-system difference was 0.3% (COSMED) and 1.9% (KORR) while RER (VCO2/VO2) was 1.0% (COSMED) and 0.3% (KORR).

Table 3 - Sub-maximal Metabolic Data Within and Between System Comparisons

Percent of VO2 Max Watts Achieved @ Baseline †	COSMED System		KORR System		Significance Between Days Within Each System	Significance Between Systems Across Days Tested
	Day 1	Day 2	Day 1	Day 2		
	VO2 (mls^{-1} • kg^{-1} • min^{-1})					
60% max	27.3 ± 3.3	26.4 ± 4.0	27.4 ± 2.2	26.3 ± 3.1	NS	NS
75% max	32.0 ± 3.1	32.4 ± 4.0	32.0 ± 2.9	32.3 ± 3.6	NS	NS
90% max	35.4 ± 5.5	38.2 ± 5.0	36.7 ± 3.7	38.2 ± 4.7	NS	NS
	VO2 (liters • min^{-1})					
60% max	2.137 ± 0.208	2.071 ± 0.340	2.150 ± 0.221	2.067 ± 0.297	NS	NS
75% max	2.505 ± 0.224	2.539 ± 0.377	2.508 ± 0.275	2.536 ± 0.353	NS	NS
90% max	2.873 ± 0.307	3.000 ± 0.444	2.858 ± 0.365	2.997 ± 0.428	NS	NS
	VCO2 (liters • min^{-1})					
60% max	1.946 ± 0.252	1.886 ± 0.365	1.973 ± 0.247	1.931 ± 0.337	NS	NS
75% max	2.423 ± 0.256	2.437 ± 0.388	2.433 ± 0.340	2.477 ± 0.432	NS	NS
90% max	2.955 ± 0.370	3.024 ± 0.484	2.933 ± 0.477	3.070 ± 0.583	NS	NS
	RER (VCO2/VO2)					
60% max	0.91 ± 0.06	0.91 ± 0.06	0.92 ± 0.05	0.93 ± 0.05	NS	NS
75% max	0.97 ± 0.06	0.96 ± 0.05	0.97 ± 0.05	0.97 ± 0.05	NS	NS
90% max	1.03 ± 0.06	1.00 ± 0.05	1.02 ± 0.06	1.02 ± 0.06	NS	NS

† (60% of max watts = 131 ± 24 watts; 75% of max watts = 164 ± 30 watts; 90% of max watts = 195 ± 36 watts)

VI. DISCUSSION

This study's purpose was to compare the reliability and validity of the KORR metabolic system compared to a previously validated metabolic system, the COSMED Quark medical research system. The Quark metabolic cart was previously compared to the Douglas Bag Gold Standard method (Nieman et al., 2013). Where Nieman et al. (Nieman et al., 2013) determined that the Quark metabolic system measured values for ventilation and VO2 were in excellent agreement with the Douglas Bag method at submaximal and maximal effort exercise (Ventilation: r-square = 0.94, mean differences ± 11.1 mls • min-1; Oxygen Uptake: r-square = 0.97, mean differences ± 2.3 mls • kg-1 • min-1). In addition, the mean absolute oxygen uptake difference for all measurements (submaximal and maximal efforts) was 0.8% (COSMED: 2.754 ± 1.193; Douglas Bag Method: 2.731 ± 1.195 mls • min-1).

In the current study, there was excellent agreement between the COSMED and KORR metabolic testing systems during both steady-state submaximal and maximal exercise efforts. Interestingly, while the COSMED system is a breath-by-breath system and KORR uses a mini-mixing chamber (not breath-by-breath) design, our results were similar to a previous study comparing the PNOE breath-by-breath system with the same COSMED system used in the current study (Tsekouras et al., 2019). Tsekouras et al. (2019)

reported for VO2 (ml • min-1), the mean percent difference across all stages combined was 1.5% (COSMED: 2.217 ± 0.605; PNOE: 2.183 ± 0.604 liters • min-1). In the current study, looking at the VO2 (liters • min-1) comparison between systems, the difference was 0.0% (COSMED: 2.750 ± 0.409; KORR: 2.750 ± 0.477 liter • min-1). For VCO2 (mls • min-1), the reported PNOE to the COSMED system percent mean difference was 2.6% (COSMED: 2.209 ± 0.738; PNOE: 2.152 ± 0.741 liters • min-1). The KORR percent mean difference in VCO2 was 0.1% (COSMED: 2.736 ± 0.583; KORR: 2.740 ± 0.645 liters • min-1). For ventilation, the PNOE versus COSMED was 1.4% (COSMED: 55.6 ± 17.5; PNOE: 54.8 ± 17.0 liters • min-1) while the KORR system was 0.6% (COSMED: 87.5 ± 25.9; KORR: 87.0 ± 26.2 liters • min-1). Finally, PNOE measured RER percent difference compared to COSMED was 1.2% (COSMED: 0.98 ± 0.07; PNOE: 0.97 ± 0.08) while the KORR system was 0.0% (COSMED: 0.99 ± 0.07; KORR: 0.99 ± 0.07). Table 4 summarizes the absolute mean % error values and the range across all stages measured in the PNOE and the current study. Additionally, using data supplied by Montoye et al. (Montoye et al., 2020), a similar comparison in Table 4 included their study, which compared the PARVO versus the VO2 Master portable metabolic system

Table 4 - Absolute % Difference§ and Range Between Systems Compared Across All

Measurement	PNOE Reported Mean % Error (Range) Compared To COSMED System	KORR Reported Mean % Error (Range) Compared To COSMED System	VO2 Master¥ Reported Mean % Error (Range) Compared To PARVO Med System
Ve (liters • min^{-1})	1.4% (0.2% - 2.3%)	0.6% (0.2-% - 2.1%)	1.6% (0.7% - 5.8%)
VO2 (liters • min^{-1})	1.6% (1.2% - 2.5%)†	0.01% (0.0% - 3.8%)	6.4% (1.5% - 16.8%)
VCO2 (liters • min^{-1})	2.6% (1.9% - 5.6%)	0.1% (0.3% - 4.0%)	NA
RER or RQ	1.2% (0.4% - 3.3%)†	0.0% (0.3% - 2.3%)	NA

† We found a small report error in the original article for VO2 values (2) . Thus, the absolute error values are slightly different than would have occurred from original article's data. The data error correction we report actually improves the PNOE VO2 comparison with the COSMED Quark system. Accordingly, the reported RQ values are also slightly changed as a result.

¥ = The VO2 master system only measures ventilation and VO_2 (1).

§ Between system differences were calculated using the following equation: Absolute Difference (Reference System-Test System)/Mean (Reference System + Test System)

In the current study, there were no significant differences observed in determining VO2 max between the systems for all subjects combined and when comparing the test-retest group (Figures 2 & 3). Additionally, Table 3 highlights that both the COSMED and KORR systems had excellent test-retest agreement within and between the systems. For example, if one looks closely at the VO2 (liters • min-1) results, one can see that for each stage, both systems pick up each stage's subtle day-1 to day-2 differences. To illustrate, at 60%, both systems showed oxygen uptake was slightly higher on day 1 versus day 2. For 75% of the max, day 1 and day 2 are virtually the same in both systems. And for the final submaximal effort state at 90% of max, the day 1 data was slightly lower than day 2 in both systems.

These findings are important because systems must be able to correctly detect small, moderate, and large changes accurately. For example, in the HERITAGE Family Study (Bouchard et al., 1999), the authors found that after 20-weeks of standardized supervised aerobic training, the mean oxygen uptake increase was approximately 400 mls for 481 subjects tested pre-to-post.

However, the study also showed that there was extensive adaptation heterogeneity across individuals, with some losing or having only very small changes in VO2 max over time, and others gaining in excess of 1-liter • minute-1 in VO2 max. Thus, given the individual heterogeneity and the relatively small mean changes in fitness likely even over long-duration interventions, it is necessary for metabolic systems to be able to detect relatively small differences over time.

The primary purposes of many newer metabolic systems are to monitor a person's fitness and wellness programming outcomes over time by using a simplified and less expensive testing process. Therefore, it is critical that such systems can detect similar subtle changes consistently and accurately that occurred in the current study. For example, a recent study published by Montoye at al. (2020), comparing the VO2 Master portable metabolic system versus the Parvomedics 2400 (criterion) system, showed that the VO2 Master device had a mean VO2 percent error for submaximal and maximal exercise ranging from 0.8 to 5.8%. However, regression analysis of the VO2 max data in liters • minute-1 between both systems showed there was minimal agreement between the systems (r-squared = 0.17, SEE = 0.302, p = NS). In contrast, the same analysis comparing the KORR to COSMED systems showed excellent agreement (r-squared = 0.94, SEE = 1.41, p = 0.0001) and between the PNOE and COSMED system (Intraclass Correlation Coefficient = 0.98, Confidence Interval = 0.96 - 0.99, p = 0.0001). To further emphasize the importance needed for accurately being able to collect reliable and valid metabolic data, if one considers the 302 ml SEE in the VO2 Master study in context to the training changes observed in the Heritage Family Study, approximately 175 of 481 total subjects were tested in this study (36% of the study population), improved ≤ 300 mls. Thus, the VO2 Master system may not be able to consistently detect such small changes in VO2 max, while both the PNOE and KORR systems appear accurate enough to determine these changes.

In conclusion, this study's results show that the KORR metabolic system data were both reliable and valid compared to the COSMED Quark system when strict research testing guidelines and protocols were used. At the same time, the authors believe that manufacturers of these newer devices should provide clear and detailed testing guidelines and training programs for testing personnel. No matter how accurate a metabolic system is, without proper protocol design and general testing procedures, achieving accurate client data may be compromised (Broeder, 2014).

VII. ACKNOWLEDGEMENTS

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VIII. DATA AVAILABILITY

This study's data will be provided by the corresponding author as needed.

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Trans-modalities of Peace through the Humanities: Institutionalizing Contemporary Pathways of Belief

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ABSTRACT

Issues related to conflicts and crises are likely to be subjects of the humanities and social sciences. A culture of peace is a scientific culture that builds peace through both conceptual and empirical tools.

Consequently, security and peace are human constructs in the short, medium, and long term, and the humanities can address them through approaches that resolve issues of cohesion and coherence within the contingencies of categories and divisions among communities, societies, and all societal processes.

The research, therefore, asks, "How can the sciences in general, and particularly the humanities and social sciences, interrogate the contingencies of peace in the deconstruction of processes that undermine peace in the minds of people?"

Within each of the humanities, examining the "trajectories of conviction" of theories allows us to identify, from a shared perspective, epistemological orientations for each variable of social action capable of fostering representations, attitudes, and behaviors that build peace within communities, nations, and so on.

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I. INTRODUCTION

All over the world, we are witnessing multiple and diverse crises in our countries: symbolic crises reflecting the fracture of a world without science or conscience, as in Ukraine, and crises involving a thousand cultures on certain continents, such as in Africa and the Middle East.

The current crises are crises of humanity (testing human dignity), crises of values (involving the categorization of values), and breakdowns in dialogue (due to the absence of reliable reference points). We might conclude that the crisis is ultimately a crisis of the human sciences. We have a compartmentalized scientific environment, whereas human beings exist within a comprehensible lived experience that determines their unity as both subject and object of peace.

According to the 1945 UN Charter and the Constitution of the United Nations Educational, Scientific and Cultural Organization, "since wars begin in the minds of men...it is in the minds of men that the defenses of peace must be constructed." Thus, the issue of security and peace is a human construct in the short, medium, and long term, addressing the contingencies of the construction and outbreak of violence. How can the humanities examine the contingencies of peace by deconstructing the processes that undermine peace in the minds of men?

The objective is to identify and describe the fundamentals or "units of conviction" of the humanities in addressing the contingencies of sustainable peace in our societies in crisis.

Through a conceptual approach to the epistemology of the humanities, we can identify the "pathways of conviction" within these disciplines that can provide strategic and operational guidance for peacebuilding. Note that a "path of conviction" of a discipline, for us, is a substantial orientation in terms of its contribution to our problem of building an environment that guarantees peace in the minds of people.

By centering the concept on the "minds of people," we engage in a dialogue with the humanities, including disciplines such as history, anthropology, ethnology, linguistics, psychology, sociology, and economics, without delving into the complexity of their subdisciplines. In addressing the question of the mind, we cannot overlook the question of how knowledge of the mind is constructed through education and philosophy, which can offer a comprehensive understanding of underlying principles.

By identifying the modalities and trans-modalities of the constraints or contingencies of the humanities on the processes by which crises emerge in people's minds or in the formation of communities, this paper aims to reflect on variables of social and societal action that could foster peace-building attitudes and behaviors within communities, nations, continents, the world, and beyond.

Our study does not claim to provide an exhaustive account of the paths to conviction for sustainable peace, but rather to serve as a tool for understanding a complex phenomenon that peace practitioners often approach with theoretical concepts that are more specialized (as their field requires) than systemic (as the social system itself demands); it is therefore a matter of examining a few examples to understand or achieve the whole.

II. FROM EPISTEMOLOGICAL APPROACHES TO A MODEL OF REFLECTION FOR A PEACE INSTITUTION

For a reflection that addresses a number of pathways within the paradigms of the humanities, we believe that an approach drawn from epistemology can lead us to better conclusions. We agree with R. Harre (1984) that "epistemology is the theory of knowledge." However, we highlight a new axis of alignment-the ethical and utilitarian dimension of knowledge construction as a reference point alongside the axis of the dimension of true knowledge.

The analysis of structures (formalizing analysis method) and that of their genesis (historical method) leads us to a direct (deductive-constructive) method of analysis. This approach is therefore useful in the sense that the criteria to which true knowledge should conform lie in "ubiquity"-simultaneity in time, omnipresence in space, and the duality of its tools that bridge the real and the virtual. Thus, the ultimate goal is to evaluate a postulate regarding the construction of "human dignity" or the construction of healthy interactions defined within increasingly vast relevant spaces through paradigms of the human sciences, alongside a social and technological civilization that is reflective of its overall functionality.

It should therefore be noted that this is a normative, rather than descriptive, scientific approach; a kind of systems theory that draws its categories from the "trajectories of belief" within the humanities-in their respective times and spaces-as meaningful subsystems within a

constructed, relevant system, in the sense of a normative prediction. Thus, we have preferred "formal" statements that are true in the history of science rather than empirical ones that are difficult to grasp. Because it is justified that the true applies or is constructed following the example of (true) theorems for (real) architecture, and what is observable-such as the history (or other sciences) of a war-already has consequences, as exemplified by what can be established through the findings of history, anthropology, ethnology, linguistics, psychology, sociology, and the economics of the war in Ukraine (historical and assessable). We seek an approach to scientific normative prediction (formalized from factual findings) drawing on the experience (historical or of genesis) of the "trajectories" of the humanities.

If we agree with A. Chalmers (1999) and L. Soler (2000) that epistemology is a reflexive and critical discipline specializing in the validity of knowledge, we propose here a premise for updating the principles or methods of validating knowledge in the humanities in order to build an environment of peaceful interaction for the human person.

This reflection serves as a framework for strategic monitoring in the humanities in the sense of Strategic Anticipatory Monitoring-Collective Intelligence for global security and peace. This concept is explained by H. Lesca (2003): "Strategic Anticipatory Monitoring-Collective Intelligence (SAM-CI) is the collective, proactive, and continuous process by which a group of individuals proactively tracks and utilizes relevant information concerning their external environment and the changes that may occur therein (including disruptions) with the aim of creating business opportunities, innovating, and reducing risks and uncertainty in general." Can we thus reduce uncertainties regarding peace in various spaces of social and technological interaction through an epistemological innovation in the humanities?

III. FROM DOCUMENTARY DATA ON THE HISTORY OF CONFLICTS TO THE SOCIOLOGY OF CONSTRUCTING A NEW ORDER FOR PEACE

By using the attached documentary data for critical reflection on the sources of conflict alongside the history of sociological concepts and models for understanding or designing an order that prescribes peace in our societies, we adopt a practical approach within our critical study. The following two tables provide an overview for a comprehensive and critical sociological analysis.

Table 1: Cycle of institutionalization in the history of the sources of conflict

Inspiring Authors and Historical Thoughts			
Authors	**Period**	**Central themes**	**Converging or symbolic key ideas**
	Antiquity		
Herodotus		Account of cultural contacts and interethnic conflicts	Interactions between major ancient civilizations: social exchanges and military confrontation as a primitive form of globalization
Thucydides		Wars as a driving force of political transformation	The resonance of the struggles for power and domination between Athens and Sparta in global conflicts
	Middle Ages		
Ibn Khaldun		Dynastic cycles and economic interactions	The emergence of globalization through trade and migration
	Modern era		
Fernand		The World	Conflicts between empires as struggles for control of

Braudel		Economy Over Time	trade routes and markets
Immanuel Wallerstein		The capitalist world-system	Conflicts as tensions between the global economic system and its center, periphery, and semi-periphery
	The 20th Century		
Samuel Huntington		Clash of Civilizations	Modern conflicts stem from cultural and civilizational differences (the West, Islam, China) rather than economic or ideological rivalries
Francis Fukuyama		The End of History	The end of ideological conflicts is a consequence of economic globalization and the widespread adoption of liberalism
Zygmunt Bauman		Globalization as a fluid process	New types of conflicts are linked to chaotic globalization, characterized by economic inequalities, migration, and other uncertainties
Thomas Piketty		Economic inequalities as a source of geopolitical tensions	Conflicts are fueled by globalization exacerbated by capitalism
Joseph Stiglitz		Critique of neoliberal globalization	Global institutions (IMF, World Bank) are sources of local and global conflicts through the worsening of inequalities

Source: our summary of the authors and content of their historical works that have shaped the concept of conflict

By tracing the history of conflicts through these seminal authors, we observe that the organization of peace involves an opportunity for cooperation within a globalization marked by tensions rooted in inequality, cultural clashes, or power dynamics.

Theories of globalization highlight in their analysis of these processes that the world is becoming increasingly interconnected. On multiple levels, globalization entails various adjustments.

From an economic perspective, there is the division of labor and its benefits (Adam Smith, David Ricardo), as well as the inevitable consequences of the capitalist expansion of globalization and its exploitative effects (Karl Marx).

From a sociological perspective, transcendence is evident at the level of national borders, altering cultural identities and social relations through the redefini s of human interactions and the intensification of social relations across geographical distances (Anthony Giddens), alongside the interaction of local cultures and globalization (Roland Robertson).

From a political perspective, the influence of state sovereignty and the global balance of power, within a world system shaped by capitalism, highlights inequalities between the center (rich countries) and the periphery (poor countries).

From critical and environmental perspectives, the risks associated with global overconsumption and the excesses of global neoliberalism (Naomi Klein and Joseph Stiglitz), with political, social, environmental, and other consequences.

In understanding the challenges of globalization, the technological dimension of the digital revolution and innovation, and the cultural dimension of cultural homogenization and the resurgence of particularisms, as well as the rise of international organizations, inspire us to reflect on reorganization to foster world peace

Table 2: Framework for understanding social changes or upheavals through sociology

Inspiring sociological authors and ideas throughout history		
Authors	**Central Themes**	**Converging or symbolic key ideas**
Émile Durkheim	Social cohesion	Social cohesion is based on specific forms of solidarity depending on the type of society (mechanical solidarity with punitive law in traditional societies and organic solidarity with restorative law in modern societies)
Max Weber	Power relations and conflict between social groups	With a comprehensive approach that defines power as a social relationship, social conflict is determined by social stratification, in contrast to Karl Marx's economic view.
Karl Marx	Power struggles and class struggle	Class struggle is a natural dynamic of capitalism, and the end of these struggles heralds the end of history
George Simmel	Conflict influences social relations	Conflict, as a structuring force in social relations, is based on differences between individuals, values, and interests, which stimulate change, innovation, and social progress
Theodor W. Adorno	A critical examination of the world through negative dialectics	An approach to negative dialectics that consists of not reconciling tensions in order to reveal the fractures in reality. It criticizes "the culture industry" as a source of mass manipulation.
Herbert Marcuse	Structures of Domination in Modern Society	Modern societies allow for superficial opposition while making fundamental change impossible through the creation of artificial needs by industrial societies and the media, technologies, and consumer cultures that defuse rebellions
Norbert Elias	Dynamics of Conflict and Social Transformation	The processes of civilization and mechanisms of pacification in societies-through the state's monopolization of violence and gradual pacification via norms of civility and institutional mechanisms-offer opportunities to reduce violent conflicts through complex interdependencies.

Source: our summary of the authors and content of their sociological works that have shaped the concept of conflict

Social, political, economic, and cultural dynamics constitute fields of exploration for sociology in the organization and institutionalization of peace.

The origins of sociology reflect the social upheavals between the Industrial Revolution and the political revolutions of the 19th century.

Sociology provides theoretical and practical foundations for understanding the sources of conflict in order to contribute to peaceful solutions.

Fundamentally, according to Émile Durkheim, social cohesion is strengthened by institutions (family, school, religion, the state, etc.) and shared norms capable of creating a sense of belonging and collective morality. In this regard, the framework for organizing global peace must be able to build this universe of social cohesion. Anomie-or the ambiguous state of global norms and institutions-constitutes today the threats to peace described by Durkheim.

Max Weber's comprehensive perspective on social conflict within social relations introduces a social, identity-based dimension into the construction of a peaceful environment. We believe that human identity (with practical applications) must be able to prescribe this order of substantive

identity-based values to ensure social cohesion in the world.

While Karl Marx locates the end of history in class struggle, the perspective of human identity could translate the meaning of conflict into the question of social recognition within the Weberian framework rather than focusing solely on economic aspects. There is therefore a shared order of meaning to be built into new models of global leadership.

For us, fostering a better human cultural industry is a source of cohesion, not a means of manipulating the masses, insofar as it is grounded in human values and norms.

Norbert Elias's contribution to our understanding of peacebuilding lies in the fact that a strong supranational institution of the world's states is capable of managing the complexities of natural interdependencies ranging from the individual to the international level. And the transfer of the monopoly on violence from the community level to the global level, via the continental levels, can bring a peaceful global civility to this world of intense violent contradiction.

IV. FROM INTEGRAL PHILOSOPHY TO MASTERING COMPLEXITY IN THE CONSTRUCTION OF PEACE INSTITUTIONS

First and foremost, when addressing epistemology, we can include reflection on integral philosophy, which considers three realms of reality: the internal (individual consciousness), the intersubjective (collective consciousness), and the external (matter and life-time, space, energy, or external interface). Since these realms are evolving from this perspective, we believe that this field of science can provide a unifying vision of these realms by offering coherent directions in the evolution of things. Language and communication are relevant vectors for disseminating coherent visions in the external realm. Psychology, through the imagination and representations, can convey the foundations of these visions within the internal and intersubjective universes. This can improve systems of human relations toward more relevant approaches to peace. By creating a sound structure for the worldview, these fields of science can advance the cultural dimension of humanity by implementing value systems that are relevant and inclusive of large human groups. The philosophical approach will prioritize, for example, themes of human sensitivity, ecology, and the search for harmony and consensus through openness. This is how reflection on peace brings together several disciplines of the humanities.

Table 3: Pathways of Integral Philosophy

Examples of facilitating relevant belief pathways	Authors	References and works
Guiding a hyperbolic morality in the spirit of "de-bourgeoisifying a revolution" with a responsibility not to others but to God, the law, and authority (which enlists the thought of the world for the world)	Emmanuel Levinas (1978)	Other than being or beyond essence
Facilitating the fullness of man's natural sociability and not that of a social being (which excludes the biases of communal divisions)	Thomas Hobbes (1651)	Leviathan
Consolidating the presence of positive inclinations: the tranquility of order and the harmony of justice (which allows for the institutionalization of an order based on the organization of peace through the mastery of specific epistemological biases)	Saint Augustine (413)	The City of God, Book XIX

Freeing oneself from the fact that "since wars arise in the minds of men…it is in the minds of men that the defenses of peace must be raised" (which reinforces perceptions of justice and fairness in the transactions and transformations of future generations)	UN (1945)	1945 Constitution

Sources: our summary, January 2024

Within this framework of "paths of conviction" that can encompass a comprehensive understanding of peace, we propose that the epistemology of the humanities can reveal an intellectual or partisan construction of the contingencies of a lasting peace. According to E. Levinas (1978), peace is rooted in a negation of the self so that ethics may endure: "the recurrence of the self in responsibility for oth , a persecutory obsession, runs counter to intentionality, so that responsibility for others can never signify altruistic will, an instinct of natural benevolence, or love. " (p.177). In the construction of peace, this "hyperbolic" form of benevolence is a rigid, integrative perception of the complex dynamics of life in society and in the construction of social order. If this conception appears supernatural or utopian, it can be tempered by other, less idealistic conceptions. With T. Hobbes (1651), one can understand that man is not naturally social (a natural disposition to live in society); rather, he undergoes the process of constructing a society that takes into account spaces of complex constructivist interactions: a natural sociability. Christian doctrine, as articulated by Saint Augustine (413), envisions peace through an approach of individual self-mastery, self-discipline, or an order within the components of the self (body, soul, etc.) leading to order within the family and in one's increasingly expanded environment, following the same framework. To arrive at a level of the concept of peace aligned with the UN's ambition, as enshrined in its 1945 founding principles within the constitution, we believe that our reflection can fundamentally and epistemologically interrogate the disciplines of the humanities, which are connected to the construction of contingencies within the minds of people.

V. FROM THE DECONSTRUCTION TO THE CONSTRUCTION OF SOCIOLOGICAL SOLIDARITY IN THE INSTITUTION OF BONDS

In sociology, solidarity or social cohesion provides a framework conducive to reflecting on the direction of one of the human sciences, in order to chart the epistemological path-the course of conviction-that this field of study can adopt to construct an environment of "thought" on the question of peace. While E. Durkheim (1888) explored the concept, he situated it within a contingent environment between a mechanical model-which fosters an environment of similarity among actors and their functions-and an organic model within an environment of diversified social functions. While E. Durkheim's (1888) perspective holds true in these specific contexts, our global context of diversification within the unity of functions may necessitate the construction of a solidarity of bodies or categories (subsystem) capable of ensuring the balance of the mechanical format within each body, and a human or global solidarity (system) capable of ensuring regulation with the organic format between bodies in order to establish lasting bonds. This mechanical and organic solidarity enables the development of perspectives through the rational pooling of resources on both sides to avoid conflicts-most of which are linked to the sharing of energy and vital resources . Even if the familial, social, or intergenerational form is a level of humanizing "bond," the civic (legal) form must remain the concept of the universal "bond" between humans in a modern world: this must enable a mobile citizen, capable of upholding universally acceptable values. The deconstructed format of practices generates the conceptual form of global solidarity with criteria for evaluating the levels of achievement of groups, nations, continents, and the world. Thus, reciprocity is an objective of solidarity.

Sociology, in this sense, will reveal the best systems of "cultural control" (T. Parsons, 1951). From a constructivist perspective, subsystems will have criteria for the formulation of global systems.

Table 4: The Path of Sociology

Examples of relevant belief-based learning activities	Authors	References and works
Human interaction must be viewed as "unsociable sociability"	Immanuel Kant (1947)	The Philosophy of History
Constructing dialogue through language resolves unsociable sociability; "an agreement reached through communication has a rational content" p.297	Jürgen Habermas (1962) and (1987)	-The Public Sphere -The Theory of Communicative Action
Freeing oneself from the decline of cultural, philosophical, or political reality, as exemplified by "the decline of the Roman trinity of religion, tradition, and authority"	Hannah Arendt (1961)	The Crisis of Culture
Concluding historical institutionalism and the actor's dependence within the system of action according to the principle of "path dependency"	Sven Steinmo, Kathleen Thelen, and Frank Longstreth (1992)	Structuring Politics: Historical Institutionalism in Comparative Analysis

Sources: our summary, January 2024

In a Kantian approach (E. Kant, 1947), conflict or the nature of an unsociable interaction remains the agent of change and transformation within the natural order of things. It is only after navigating the complexities of conflict that interactions become peaceful. From a sociological perspective, this philosophical viewpoint highlights the constructive contributions that the sciences in general-and the humanities in particular-can make to the pursuit of peace, fostering a minimal degree of unsociability within the sociability of social environments at every level. Following J. Habermas (1962), it is possible to reframe the perspective of unsociable interactions within a concept of dialogue that constitutes a construction of sociability. By emphasizing that "public life... takes place in the marketplace, the agora, but it is not in any way dependent on this place: the public sphere is constituted within dialogue " (J. Habermas, 1962, p. 15), he frames this dialogue in terms of communication within communicative action (J. Habermas, 1987) in the context of carrying out fundamentally egocentric instrumental acts and acts of mutual understanding aimed at achieving success. In its comprehensible form of dialogue in the sense of mutual understanding, the sociological reflection on the "bond" leads to conceptualizing the contingencies of interactions in the clarification of roles and statuses in collective action and in the collective space. Here, it is no longer the assignment of democratic roles that appears important, but the clarification of the fairness and the acquired tranquility of the order and nature of the bonds in a form of harmony of organizational or institutional justice at every level of social interaction. Our sociopolitical perspective can approach current political crises as issues of multiple interests, egocentric power plays by proxy of the collective in matters of state, and above all, dysfunctions inherent in crises of belief or faith in God manifested by the absence of love for one's neighbor. The separation of philosophy from the state (since the break with human concepts of authority), as well as the absence of wisdom in politics-just as the separation of Church and state (1905) with secularism as an amputation of love in certain sensitive social interactions (secular public institutions) are, among others, pertinent issues of the day. The amputation of institutions of faith or beliefs that consolidate love in the field of education-specifically within the family and school-or the predominance of these institutions of faith over other forms of institutions constitutes the foundation of risks to peace in the minds of men. If H. Arendt (1961) views today's global crisis with suspicion as a crisis of culture-likely the "decline of the Roman trinity of religion, tradition, and authority"-this stems from the fundamental deconstruction of the frameworks of positive emotions, mutual understanding, and the relevant mechanisms governing social interactions. The call for sound philosophical currents in political action or collective action remains outdated.

The principle of "path dependency" in political science during the 1990s explains current choices by reference to past choices made through political institutions. By reflecting on an institutional approach to action with authors such as S. Steinmo, K. Thelen, and Longstreth (1992), we can acknowledge, in line with historical institutionalism, that sociopolitical phenomena depend on contextual factors-external to the actors and highly institutional in nature-such that, in principle, a humanities-based culture, through a comprehensive understanding of these factors, can foster mutual understanding to prevent conflicts and crises of all kinds. It is therefore through the performance within the institution of awareness of the choices made by the present-day, on the path of the past, that a distance can be created from choices likely to lead to a conflictual order. Models of shared political institutions remain important for defending the common space of peace, through political concepts universally acceptable via dialogue.

VI. FROM A MODEL OF FIDELITY TO HISTORY OR TO A HISTORY AS A MODEL FOR ESTABLISHING THE INSTITUTION OF PEACE IN COGNITION

Fidelity to history constitutes a source of reflection on the framework and dimensions of constructing an environment capable of reflecting the perspectives of reciprocity. The crisis in the Middle East has revealed, as P. Masson-Oursel (1949) noted, the existence of the homeland of Israel in "pure duration" without the influence of contingencies or chance. This allows us to conceive of society within a universal framework that inscribes a "pure duration" of specific moments, capable of enlisting people in a "pure social bond." The search for a world of "pure social bond" can also stem from the experience of this phenomenon of category construction at the level of its internal foundations, even if this fuels divisions in its external social bonds, which are rife with crises and conflict.

The reconciliation of primary bonds (between individuals), secondary bonds (between categories or peoples), and then at the third level (global) requires the transfer of the lived history of different categories into a collective human memory so that subsequent generations can step outside of categories to assess facts within their contexts without being bound by those contexts, ensuring that this does not become a source of categorization or manifest itself in other contexts. Interpretations of the past-particularly of conflicts-taken out of context fuel the crises of these categories through history and within history.

Following P. Ricœur (2000), it is important to distinguish between the misuse of historical memory-which is constructed similarly to collective history-and the model of history- making by the individual in the first instance: "More precisely, what appears as a paradox in historical experience-namely, too much memory here, not enough memory there-can be reinterpreted in terms of resistance and the compulsion to repeat, and is ultimately subjected to the test of the difficult work of remembrance" (P. Ricœur, 2000, p. 96)

Second, the perspective consists in moving beyond the level of selective subjectivity to enter into a reparative consciousness by transcending "the selective function of narrative, which offers manipulation the opportunity and the means for a cunning strategy that consists from the outset in a strategy of forgetting as much as of remembrance" (P. Ricœur, 2000, p.103). The abuse of ideology and the state's control of memory through official commemorations and reenactments-such as national anthems-constitute fields of historical expression that must be reconstructed within a context more in harmony with the human values of tolerance and acceptance.

By reconstructing a global environment and adopting a global perspective, we can place the history of humanity within a "pure duration" from the perspective of the universal right to "human dignity."

Table 5: Historical Journey

Examples of relevant belief-based educational activities	Authors	References and works
Deconstructing the idea that "war is reduced to the gods, heroes, Zeus, and Achilles"	Homer (Antiquity)	Book I, opening lines, trans. R. Flacelière, La Pléiade
Building the citizen by breaking free from the concepts of peace and war: "peace is the end of war... a physical end to the Greek City-State." What model of survival for the citizen?	Aristotle (384-322 B.C.E.)	Nicomachean Ethics,
"War is the father of all good things; war is also the father of good prose!" or "All becoming arises from the struggle of opposites"	With Heraclitus/ Friedrich Nietzsche	-The Gay Science -The Fragments
Peace is a political and legal practice; better yet, a plan of nature	Immanuel Kant (1788)	Critique of Practical Reason, Analytic

Sources: our summary, January 2024

The trajectory of successive convictions explains here that war and peace exist independently of their construction in the human mind. It is therefore a concept that has been long established, maintained in the minds of elites, and possesses a constancy in "pure duration." It is in this respect that these trajectories raise epistemological issues to be resolved on a sociological plane that is profoundly historical. In the ancient world, there existed a political philosophy-whether that of a philosopher or a tribal leader-that consistently established an order of peace and war, which an epistemological paradigm can deconstruct in the minds of people who "drink deeply" from this social culture.

VII. FROM LANGUAGE TO COMMUNICATION AS VECTORS OF POSITIVE INTERDEPENDENCE

Regarding the question of language in the construction of meaning or in its existence at the level of the social institution, we can compare, on the one hand, the reflection posed by E. Ortigues: "It is quite clear that, wherever a human society is found, language is already there. Society takes shape in the language it gives itself" (E. Ortigues, 1962, p. 25) and, on the other hand, the position of C. Lévi-Strauss (1950), who locates the symbolic origin of the social at this level and not the social origin of the symbolic. With the various linguistic interfaces-from text translation to the mode of instant-translated dialogue (Artificial Intelligence tools)-the comfort- e of language in reducing crises of meaning or symbol lies in positing the perspective of a symbolic origin of the social, which allows for the transcendence of social boundaries, rather than perpetuating these boundaries through the social origins of the symbolic. If this is understood correctly, the best approach is therefore the establishment of artificial language as a mode of producing unifying symbols and social institutions that ensure the impersonal and universal dimension of intersubjective environments. This presupposes that different linguistic communities perceive the digital tool as a means of integration into a universal civilization, rather than as a tool of Western civilization.

Linguistic integration as a social expansion of intersubjectivity, rather than an ethnocentric stance. The perspective of linguistic research would therefore no longer be to catalog the structures or symbols of languages, but rather to seek a comprehensive and integrative linguistic perspective-a way to break down the boundaries of subjectivity and intersubjectivity in order to finally ensure an objective, borderless environment for linguistic mediation: functional language and social, cultural, educational, professional, and economic integration, as well as international institutions.

Communication in the age of digital technology and artificial intelligence provides a

standard model for integrating human institutions with APIs, webhooks, and SnapLogic Snaps used by organizations. This improves the integration of systems (both subsystems and overall systems). The current perspective on the integration of ICT in education is focused on users and practices (academic, professional, etc.); it must also shed light on a paradigm regarding its social and human function beyond the social boundaries of these practices.

The concern at this level is not to frame the perspective of "computer-mediated communication" in the production of knowledge in the sense of A.I. Goldman (1999, p.165), but rather in the search for ways to reduce social, cultural, educational, professional, economic, and other tensions. Thus, the social interactionist perspective appears critical, because there is rather a need to focus on the "sharing" of best practices and systems capable of integrating a mechanical form of interaction in order to ergonomically reduce areas of tension.

A.I. Goldman (1999, p.161) identifies the dissemination function (informants transmit established knowledge to learners) and the collaborative acquisition function (informants co-construct new knowledge) in the acquisition of knowledge through communication. The first function deserves emphasis in this effective perspective of shared (true) knowledge to facilitate a fluid and objective intersubjective space.

By agreeing with Sperber (1996) that the inter-individual or relational process in knowledge production involves public production based on a succession of internal and external states, we believe that ICTs help consolidate the external dimension, allowing the human dimensions of the relationship-namely, conviviality-to flourish in the inter-individual sphere.

From a humanities perspective, it is pertinent to note, as L. Bouzidi and S. Boulesnane (2017, p. 27) do, that "by abolishing spatiotemporal boundaries, digital media crystallize social relations and establish modes of operation and logics centered on collective intelligence." Defining withdrawal policies in this environment of sharing and communion at the level of a country, a continent, or any other jurisdiction constitutes a marginalization of peoples within these humanities. "The challenges of the digital humanities lie first and foremost in redefining rules and codes and integrating new social frameworks consistent with current values" (L. Bouzidi and S. Boulesnane, p. 37); and it is through the institutionalization of peace, with contributions from the sciences, that our human environment can build this "communion" of peoples.

Table 6: Communication Pathways

Examples of facilitating relevant belief journeys	**Authors**	**References and works**
The function of dissemination in the acquisition of knowledge through communication	Alvin Goldman (1999)	Knowledge in a Social World
The collaborative acquisition function in knowledge acquisition through communication	Alvin Goldman (1999)	Knowledge in a Social World
The Inter-individual or Relational Process in Knowledge Production	Sperber (1996)	The Contagion of Ideas
The contribution of the digital humanities through community building, collective intelligence, and interaction with the environment	Laïd Bouzidi and Sabrina Boulesnane (2017)	Digital Humanities: Changing Uses and Practices

Sources: our summary, January 2024

The key themes lie in the social integration or social inclusion of these information and communication technologies within institutions that are increasingly integrating human spaces. It is therefore a matter of restoring communication's role as a means of knowledge transmission within global social epistemology, in order to make knowledge true and to ensure that sociological relationships-or "bonds"-flow smoothly. It is a matter of defining the paradigm of a unifying function for communication at every level of human interaction, because, as B. Conein notes in social epistemology, "listening to multiple witnesses does not guarantee that they are telling the truth, but it makes it more likely" (B. Conein, 2007, p. 152): the acceptance of certain ICT tools as a means of stabilizing dissemination in shared spaces, without censoring the ubiquity (duplication) of the function of collaborative knowledge acquisition along dialectical lines with other specified tools.

VIII. WHAT ETHNOLOGY TELLS US ABOUT OURSELVES WITHOUT THE OTHERS: HOW TO REDUCE THE OTHERNESS OF INSTITUTIONALIZATION

Originating from European interests in Afro-Asian and Amerindian civilizations, ethnology established itself as a descriptive science of life, encompassing collected facts or theories about cultural phenomena. The classifications of superior and inferior civilizations in this research- and the civilizations rejected by E. Durkheim (1888)-deserve our attention here. If the approach aims to go beyond the habits and daily life of each community, it is merely a methodological strategy to arrive at a shared civilization designated as "modern"-the result of a multifaceted convergence of various cultures across multiple civilizations to pool what appears objective and relevant. The distinction between digital culture and community culture in their daily experiences will, in principle, reduce the tension at every level stemming from the necessity of reciprocity.

The (empirical) studies of H. Garfinkel (1967, p. 51) address the mundane activities of daily life through practical sociological reasoning. Contemporary ethnology will require the support of ethnomethodology, in the sense of H. Garfinkel's approach, to understand the social and societal reserves in the appropriation of emerging phenomena related to ICT use. This provides the means to deconstruct barriers to the integrative environment of ICTs in daily life, ensuring a better understanding of the meaning people ascribe to their actions, as well as enhancing reciprocity among people.

Table 7: Pathways in Ethnology

Examples of facilitating relevant belief-based pathways	Authors	References and works
Conceiving of a societal structure as a "singularity that merges with a generality during the transformation of a transformed society" (as opposed to the generic)	Tryggvi Örn Úlfsson, (2018)	Singularity, universality, genericity, and generality in Alain Badiou
Conceiving the same societal structure as a "universality through a power of being indifferent to any particular situation" (as opposed to indexed generality)	Tryggvi Örn Úlfsson, (2018)	Singularity, Universality, Genericity, and Generality in Alain Badiou
Building an integrated social environment in the image of "technological singularity" that governs human purpose in globalization and universalization	John Von Neumann, Ray Kurzweil, and Vernor Vinge (1958)	The Singularity
Finally, consider a scenario of the "death of this object of otherness" (or their transfer to museums) in ethnology to bring a scenario of "life" to anthropology.	Our present study	Modalities of institutionalizing peace with the humanities

Sources: our synthesis, January 2024

Social and cultural distances, given current conditions of subjectivity and emotionality-for example, between states with capitalist ideologies and those with socialist ideologies- constitute an additional challenge, acting as a "pollution" in the understanding of the other within a form of updated reciprocity. The spaces of symbolic networks and identity create such a diverse object of ethnology, whereas for peace, one must envision a scenario of the "death of this object of otherness" (or their relegation to museums) to foster a scenario of "life" for anthropology. This is by no means a call for the death of human civilization's identity, but rather a "resurrection" of consensual values from a deconstructed human space into spaces of reciprocity; a sort of reconquest of human identity within a broader human civilization, creating consensual institutions against the aberrations of patriotism, nationalism, and "-isms" that humiliate human dignity. To this ideological debate that may arise, there is a symbolic response that allows for mutual understanding of the approach.

If we accept that ethnology and its object is a generic space for naming human singularity, as defined by A. Badiou (2000), its disappearance is synonymous with a culture of full sharing of common values-as socialism defines this value-and the surrender to an otherness centered on the worthless object that is capital constitutes a social compromise leading to the reintegration of human culture into the global village. This is the search for the universal "ethnicity" of humanity. Within this universal humanity, we can construct schemes of singularity and universality (A. Badiou, 2000) in a newly constructed environment.

Singularity carries the essence of a "thinkable" subject for political action (A. Badiou, 2012) and is not a medium for the reproduction of a social structure as posited by Althusser (1965) , but rather the reduction of a complex asymmetry resulting from ethnocentrism or its habitus "as a system of regulated dispositions " (P. Bourdieu, 1972) in societies. By admitting this subject, "everything that exists is thus both itself and itself according to its place " (A. Badiou, 1982, p.26); however, this structural being emerges in an increasingly universal space, both in the dismantling of class perception and of the relationship to class and category, in order to perceive others in full reciprocity. In its complex nature, singularity possesses a relativity that can only be described as singular in relation to a given structure (Ú. Tryggvi, 2018); thus, the process of integration into a planetary structure must necessarily take this into account.

IX. ON THE EXPANSION OF CONSCIOUSNESS THROUGH TRANSPERSONAL PSYCHOLOGY

There are phenomena that are understandable at the psychological level and must therefore be addressed. Consciousness is the totality of the individual's apprehension at the subjective, intersubjective, and objective levels, as described by integral theory with the philosopher K. Wilber. According to integral theory, evolution is dynamic at the level of the inner universe through consciousness and culture (with meanings, values, and feelings) and at the external level through its relationship with time, space, matter, energy, and life.

The perspective of psychology is to focus its research on the foundations of a culture, meanings, and an ethic of love that are capable of being universally accepted and integrated to foster greater reciprocity.

While agreeing that "sense" is "the faculty of experiencing the world through sensations," for us, "sense" carries "a connotation of value judgments, of ethical and/or epistemological significance, which leads us to deem a particular fact or action good or bad, sensible or senseless " (Y. Barel, 1990) and it "also refers to a construct in which the individual's subjectivity is not only composed of cognitions or reflections, but also of all other sensory perceptions" (K.E. Weick, 1995). From this perspective, we understand that crises or conflicts are inherent to a crisis of meaning or values, and that the dynamics of psychological research can provide meaning by creating a shared environment of perceptions that are as coherent as possible: establishing coherence between the values of Western societies-such as freedom, equality, justice, and progress, and the values of Asia with their technocratic governance and societal conservatism, for example. And it is also about giving meaning to certain things so that we do not have to strive to understand, for example, the liberalism of mores rejected by Russia and Ukraine, with a socialization that is more vertical (family) than horizontal (broader social perspective) and a nationalism displayed in these two countries, yet in crisis between the project of a unified Russian

empire on the one hand and a strengthening of its independence on the Ukrainian side. How can we reconcile the vertical socialization of one part of the world with the horizontal socialization of the other, so that humanity can regain ethical and practical human dignity? We believe that if psychological research had provided or harmonized a consensus on the meanings of relevant values in the context of globalization and internationalization, crises and conflicts would have less reason to exist. By delving into the meaning of the expression at the heart of this stage of our debate: "Meaning-making does not happen on its own; meaning is not simply given: one must seek it out and construct it" (H. Laroche, 1996, p. 226). By fostering a shift from "generic subjectivity" to relevant "intersubjectivity," the sources of conflict are, in principle, resolved through shared meaning.

Table 8: Psychology track

Examples of facilitating relevant belief pathways	**Authors**	**References and works**
Promoting a transpersonal approach from Ken Wilber's perspective because "Borders carry political and technological power, but also conflict and alienation" and "A line is not a boundary; it unites two realities"	Ken Wilber (1979)	No Boundary
Facilitating the elevation of the need for fulfillment to a non-therapeutic phase of "transcendence" of egos from the grassroots to the ruling elite and vice versa, like the spirit that has driven Westerners on the climate issue with the SDGs.	Abraham Maslow (1954)	Motivation and Personality
Guiding civilizations toward a humanistic conception of the person with an integral humanistic culture within a universe of shared values	Emmanuel Mounier (1935)	Personalist and communal revolution
Moving beyond the culture of the person as a legal entity to establish them as a member of the community without falling into a socialist ideological conception: a new society within humanity and a new humanity within a new society open to transcendence.	The Person from the Perspective of Emmanuel Mounier (1936)	Manifesto in the Service of Personalism

Sources: our synthesis, January 2024

In the development of beliefs in psychology, it is interesting to note the synthesis of theories from various disciplines into four types of territories from K. Wilber's perspective: the inner territory of the individual, the inner territory of the collective, the outer territory of the individual, and the outer territory of the collective. These developmental paths of belief are significant because the integral perspective connects the inner universe with the outer universe.

Recognizing that internal evolution is possible through consciousness and culture- specifically, knowledge of the inner world regarding meaning (the significance of things), values, and love-the institutionalization approach aims to consolidate human consciousness and a universal culture through the of shared meanings and values, thereby enriching the perspective of boundless love.

From a perspective of "transcendence"-not specifically in a therapeutic sense, as proposed by A. Maslow (1954)-to foster a longing to experience a sense of unity, and thereby the unity of humanity, a culture of psychological science promotes unconditional love among every world leader or at levels of governance, adopting as a principle a transcendence capable of dispelling "egos" in the planet's collective action on issues of security, peace, the environment, etc. On the climate issue, we have practical experience in defining the Sustainable Development Goals (SDGs). This model of transcendence has the potential to reduce areas of tension and erase dividing lines to draw unifying ones. By excluding egos from governance at the global and other levels, we also create a world of sages and heroes of humanity.

Following E. Mounier (1936), the perspective of eliminating violence stems from a culture that has diminished the transpersonal; a humanistic conception of the world capable of integrating civilizations with the human sciences-and particularly here with psychology-as tools for building instruments of personal fulfillment (one's functioning and integration into the broader social organization) within a shared civilization.

X. WHAT BECOMES OF THE "BOND" WITH THE OTHER FROM AN ANTHROPOLOGICAL PERSPECTIVE,

By reflecting on daily life within an increasingly expansive identity space from the perspective of integration and the breaking down of barriers through the decompartmentalization of categories, reciprocity takes on a formal shape. We can explain this necessity for evolution by noting that, from the perspective of this evolution, reciprocity-which "presupposes the interchangeability of terms against a backdrop of homogeneity of register"- Remarkably expressed by a child's statement: "my father looks like me," the relationship of reciprocity is severed from the problem of the Third and stages two interchangeable pawns…' shifts toward a less vertical, more horizontal perspective: 'in contemporary contractualist ideology, reciprocity thus understood has become a political value through the discourse of the subject- King; it tends to undo any staging of the principle of otherness, the foundation of the gap and the limit for the subject" (P. Legendre, 1994, p. 81).

Following M. Mauss (1931), we can draw on a metaphor stating that "children will be to the children of others as their parents were to the parents of others" to convey the anthropological consequence of indirect reciprocity in its expression "children will do for their children what their parents did for them."

Aware that the driving force of social action is the economy and its social structuring, we believe that the realm of the international market economy should be left to Adam Smith's theory of the invisible hand. The central question at this level might be: how to manage spatial dispersions in a virtual environment of interactions with expertise distributed across the globe? Lévi-Strauss had identified this need for togetherness in the economy, but he highlights the tensions by studying the Nambikwara of Brazil:

"The small nomadic bands of the Nambikwara Indians of western Brazil usually fear and avoid one another; yet at the same time they desire contact, because this provides them with the only means of engaging in exchange and thus obtaining the goods or items they lack. There is a link, a continuity, between hostile relations and the provision of reciprocal services: exchanges are wars peacefully resolved, wars are the result of unfortunate transactions" (C. Lévi-Strauss, 1967, p.78)

This principle of reciprocity offers yet another opportunity to reflect on our fundamentally human world in terms of living together, yet one in perpetual evolution regarding the concept of socialization within a reciprocity acceptable to all.

Table 9 : A Journey Through Anthropology

Examples of relevant belief-based learning activities	Authors	References and works
From the perspective of an evolutionary theory updated by Morgan, civilization achieves effective sociocultural development through "technical inventions and discoveries," "the concept of government," "the concept of the family," and "the concept of property"; and it is on the basis of these criteria for comprehensive sociocultural development that every institution must function	Lewis H. Morgan (1877)	Ancient Society, or Researches in the Lines of Human Progress from Savagery through Barbarism to Civilization

With Tylor, the transition from barbarism to civilization following the savage state involves monotheism; we believe that relevant monotheism is horizontal with science (rationality) and vertical with God (faith), and it is through these orthogonal connections that we can trace positive evolution in the reversal of front lines into lines of unification.	Edward Burnett Tylor (1871) James George Fazer (1908)	-Primitive Civilization -The Golden Bough
Anthropology must be able to shed light in order to create intersubjectivity regarding the objective phenomena of different social structures.	The basis of our current reflection	
The anthropological perspective here would be to bring together all the sciences that study humanity in order to unify their subject matter with a social environment within the context of globalization and universalization, thereby encompassing the whole human person.		

Sources: our synthesis, January 2024

Pathways of conviction are situated within a cross-construction of perspectives on otherness in the evolution of cultural intersubjectivity along ideological lines or those likely to establish boundaries such as religion (faith), politics (interpersonal, intergroup, or international power dynamics), etc.

While medium-sized cities in China serve a social function of ethnic integration (Huang Fengxian's speech, 1993, according to Bernard Hours' report) by integrating ethnic groups into the market and the city to achieve national integration, the fact remains that economic motives justify the rationale for social inclusion. This model remains more a form of symbolic integration than a source of resources for the individual's genuine fulfillment. Elsewhere, in the West for example, it is the individual's fulfillment that serves as a social function. It should be noted that the question of the effective integration of the human person is far removed from the concerns of social, cultural, and political anthropology, etc. It appears important that ideological vectors cannot build substantial reciprocity to integrate the human being into their human function beyond the simple social function that is valued or sublimated.

Our anthropological reflection invites us to understand these same social realities through a holistic (monographic) approach, certainly involving a qualitative and exhaustive analysis capable of leading to solutions that transform lines of conflict into lines of unity-that is, creating intersubjectivity regarding the objective phenomena of various social structures.

One aim would therefore be to describe general patterns within the complex networks of culture in communities, and to objectively identify models of institutions in human history capable of engaging the greatest number of people in intersubjectivity and healthy reciprocity.

To rebuild a healthy environment, ethnomethodology-in its understanding of otherness- offers a perspective for approaching anthropological currents as a source of meaning-making, from the functionalist perspective (Bronislaw Malinowski) to the ambitions of structuralism (C. Lévi-Strauss). This return to the roots of anthropology does not call into question its evolutionary thinking (H. L. Morgan, J. G. Frazer, E. Tylor, etc.), its inspiration from culturalism (M. Mead, R. Benedict, etc.), or from diffusionism (F. Ratzel, L. Frobenius, etc.). However, to better address the most problematic aspect of this trend-namely, its framing of the differential question in terms of positive and negative values-we believe that anthropology, from its evolutionary perspective, deserves special attention here.

The theory of the sociocultural evolution of humankind determines an internal dynamic. This enriches the lines of diversity and the risks of multiplying fronts against the best processes of integral acculturation: by creating civilized groups and leaving others behind, we trace lines of cultural diversity without mutual understanding; by remaining in cultural stances that run counter to progress and development, we hide within an egocentrism equally resistant to any form of mutual understanding.

While, according to E. Tylor, the transition from barbarism to civilization after the savage state involves monotheism, according to Morgan, civilization proceeds through effective sociocultural development involving "technical inventions and discoveries," "the idea of government," "the idea of the family," and "the idea of property." Furthermore, if J.G. Fazer placed the stage of "science" at the pinnacle of evolution following the "magical" stage (the failure of control through magic) and the "religious" stage (the arbitrariness of divine will), it is because he reminds us of our capacity to act upon fate (through scientific thought and technical applications).

The rational man in a theory of choice as rational for humanity can conclude that civilization would be the capacity to establish within this evolution a level of ethical culture capable of reaching the most promising level to erase the lines of division and replace them with lines of unification at all levels of sociocultural intersection.

XI. FROM ONE GENERATION TO THE NEXT, EDUCATION IN ACCULTURATION PROCESSES

Finally, we focus on education for effective acculturation to explore more shared space by putting the TPACK model (M.J. Koehler and P. Mishra 2008, P. Mishra and M.J. Koehler 2006), which explores the intersection of three domains: technology (ICTs), pedagogy (models, strategies, techniques, and methods), and content (knowledge to be transmitted). The primary concern here is to articulate a pedagogy of transnational, continental, and global knowledge sharing, taking into account the virtual environment for transmitting this knowledge and the level of mastery of this knowledge. By emphasizing the globalization of education at a strategic level, it is clear that we can create spaces for the pooling of a global governance of sharing. The school will thus occupy a middle ground between the global sphere on the one hand and the family sphere and the local school institution on the other.

C. Ponsot addressed the current tensions in education in these terms:

How do children and young people engage with digital technology? How do they navigate the imaginary and the virtual? How do they deal with multiple, multifaceted identities?

What are the consequences for living together? For respect for freedoms (private and public spheres), individual rights, and equality for all?

What contribution does this make to understanding the world, personal fulfillment, and empowerment? How can we support children and young people in acquiring knowledge, skills, and the social relationships that stem from them? (C. Ponsot, 2012, p. 58)

These various tensions raised by this issue are resolved through inclusive education, overseen by global education strategists and experts via -an international linguistic platform that incorporates values from each scientific field identified here, for example-in order to foster behaviors socially adapted to the digital space of sharing. Should we, as with the separation of church and state in 1905, enact a law to separate endogenous practices from digitized universal knowledge? Or simply draw a metaphor from E. Durkheim (1912) to say that we should "synthesize the best of each religion (knowledge) to form a secular religion (universal knowledge)." Thus, we must socialize the younger generation-not necessarily through the older generation-but within a constructivist framework of a society free from the whims of tensions and crises (a perspective rooted in a scientistic ethic). This is not a centralized approach to education as seen in communist, socialist, or capitalist ideologies; rather, it is a mediation of learning within a shared space facilitated by ICTs.

We take a different stance regarding the theory of the evolution of religion as articulated by E. Durkheim (1887) in his essay "On the Irreligion of the Future," in which he emphasizes the necessity for religion to disappear as a totalizing authority over various forms of social life, thereby making way for science as the system for explaining the world. Here, making no claim to eliminate religion (it is only right to restore its vertical stature between humanity and God), we believe that the era of globalization is an era of integration and universalization (horizontal faith, in humanity, in its rationality bestowed by God and expressed through science) that can foster aspirations for a global and universal human culture through a digital culture, with ICT users in spaces of interaction to break down barriers. This means fostering a culture of understanding others through international and intercultural program content, etc., in response to

the existence of borders, to forge bonds with other generations.

It is no longer a matter of inventing rules, imposing one's own rules, or interpreting rules, but of jointly constructing rules of connection within a perspective of globalization so that human dignity may endure. People once lived well without traffic laws, but as society has evolved, we have all accepted common signs and signals to navigate our way; it is therefore possible to find common rules to preserve "humanity" within these connections.

In a form of spiritual leadership, each discipline of the humanities can, based on its own values, advocate for the elevation of peace in the minds of men. From the League of Nations to the United Nations, the spirit of achieving peace persists in the thoughts, and then places great expectations on human institutions-from socialization through education to the exercise of the right to a human or more humane citizenship.

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