

## Ethno-Religious Diversity in Nigeria Academic Libraries: Role of Swarm Intelligence on Teams

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### Abstract

This article explores how swarm intelligence (SI) addresses academic library team limitations, amplifies library teams' intelligence, and facilitates better library service decisions. It demonstrates how libraries can use SI to harness the diverse perspectives that individual personnel bring to groups and facilitate convergence upon decisions. A thorough analysis of literature was conducted. Discoveries from literature were then used to construct a SI model applicable to the library. Findings indicate that librarians must continue to strategize through SI to position themselves for better decision-making, increased innovation, and increased productivity. SI is a vital parameter for managing teams in a diverse library. Due to the striking collective feats that many animals can produce, the study of animal SI is a crucial area for inspiration that offers the library a unique potential for transformation. The paper is valuable as it explores the application of SI on teams in diverse library settings.

### Introduction

Nigeria is a country located on Africa's western coast. The country is divided into 36 states, with Abuja serving as the Federal Capital Territory. It is Africa's most populous country. According to the United Nations, Nigeria's total population will be 401.31 million by the end of 2050. If present trends continue, Nigeria's population will exceed 728 million by 2100. Nigeria's total population accounts for around 2.35% of the world's total population. This indicates that Nigeria is home to about one out of every 43 people on the planet.<sup>1</sup>

Recently, Nigeria was named as one of the top five most diverse countries on the planet.<sup>2</sup> The nation is home to between 250 and 400 ethnolinguistic groups, each with diverse religious beliefs. According to Sowell,<sup>3</sup> the amount of ethnic variety in Nigeria has been suggested to be an impediment to economic growth rather than a source of strength. Ethnic favoritism is common in the country, causing strife among the diverse population. Recently, various ethnic groups have attempted to secede from Nigeria. This movement was led by Sunday Igboho and Nnamdi Kanu, who advocated for the Yoruba and Biafra nation.<sup>4</sup>

Furthermore, the fast spread of Christianity and Islam in Nigeria intensified the violent competition between the two religions and the cultures they. This expansionist impulse is exacerbated by crosscurrents of established religious doctrines and cultural feelings, which frequently spark violent confrontations with ethnic and religious undertones.<sup>5</sup> Another example of religious strife is the recent Boko Haram insurgency, which has wreaked devastation on the people. The current scenario in Nigeria has prompted a rethinking of whether diversity is a benefit or a curse for the country.

Diversity can be defined as a wide range of interests, backgrounds, and experiences. It is also considered in how individuals and groups differ in terms of ethnicity, race, socioeconomic status, gender, exceptionalities, language, religion, sexual orientation, and geographical location.<sup>6</sup> This diversity is prevalent in many aspects of life, including the workplace. Workplace diversity is described by Inazu et al.<sup>7</sup> as employee similarities and differences based on age, gender, cultural background, ethnicity, religion, physical abilities and impairments, and sexual preference.

A team with diverse abilities offers a competitive edge in terms of operational agility.<sup>8</sup> Likewise, diversity improves organizational competitiveness by decreasing friction among individuals. Furthermore, diversity provides new perspectives to help the organization's market performance.<sup>9</sup> It also encourages the flow of ideas through socializing, teamwork, and communities of practice inside organizations, whether local or cross-border, therefore stimulating innovation.<sup>10</sup> These advantages are magnified in diverse teams.

Team outcomes, such as team performance, are determined by a mix of team member characteristics as well as the presence and degree of team procedures. For example, studies have looked at how individual qualities like intellect, emotional intelligence, personality, and team processes affect team effectiveness.<sup>11</sup> Team processes can be highly dynamic, interacting in complicated and nonlinear ways with team member qualities, task features, and team outcomes over time.<sup>12</sup> According to Fagbe et al.<sup>13</sup> and Nwokpoku et al.,<sup>14</sup> workforce demographics and diverse perspectives, experiences, and beliefs have affected the demand for workforce management in public institutions, including libraries. For example, if librarians only connect with individuals who share similar demographics, this might lead to the demise of an organization owing to a lack of organizational commitment.<sup>15</sup>

However, poorly managed diversity can have a negative impact on organizational competitiveness.<sup>16</sup> More importantly, in addition to the social and economic benefits of managing diversity in organizations, such as libraries, moral imperatives with legal backing have existed to protect employees from discrimination, stereotyping, harassment, and social

distancing.<sup>17</sup> The repercussions of failing to manage workforce diversity include conflict, a lack of team cohesiveness, and inefficiencies in the workplace.<sup>18</sup> This scenario increases the dangers of mistrust and misunderstanding among library personnel, as well as the risks of a lack of organizational commitment and, as a result, lower job engagement.

Library personnel would be unable to realize their full potential due to poor diversity management within teams. It may jeopardize cooperation and professional communication, both of which are necessary for libraries. According to Ogbo et al.,<sup>19</sup> management fails to capitalize on diversity in Nigeria due to an inability to harness the diverse workforce as a team, resulting in poor performance. Therefore, there is a need to develop methods for managing team operations in a diverse library context and how they connect to overall performance. According to Urbancová et al.,<sup>20</sup> it is necessary to foster inclusion and acceptance of other employees while minimizing disputes that emerge as a result of differences. SI is one such method for managing diverse teams.

Bonabeau and Meyer<sup>21</sup> described SI as a group behaviour that emerges from a group of social insects in which the social insects operate in teams that are also self-organized, self-coordinated and supervisory. This coordination is the outcome of a high level of contact among those engaged. This approach appears primitive because one ant follows the path left by another ant; however, this simple method efficiently solves some reasonably complicated issues by adopting a constructed behaviour.

Diversity exists among various social insects, just as it does among people, and the influence of within-colony diversity on colony efficiency has been chiefly researched in honeybees. For example, genetic diversity in honeybees helps colony efficiency in essential activities like nursing and carcass removal. This increased efficiency has increased productivity<sup>22</sup> and survival.<sup>23</sup> The reason underlying this might be the diversity of workers' response thresholds and the optimization of job allocation based on colony demands. More diverse social insect colonies feed more efficiently: certain ant colonies forage for a more extended period, while honeybee colonies exchange more recruitment signals and harvest more pollen.<sup>24</sup>

Though animals are generally thought to be less intelligent than humans, they are capable of extraordinary collective feats such as determining the most efficient route to a food source,<sup>25</sup> selecting the highest quality nest site from a set of options,<sup>26</sup> navigating as a unified group,<sup>27</sup> and establishing a colony with a division of labor.<sup>28</sup> Evolutionary biologists have thoroughly researched the mechanisms underpinning effective team results while also expanding the field's tools and approaches by examining these unique behaviors. Based on this

background, this paper aims to identify areas where animal SI studies can promote new insights into teams in diverse libraries like those in Nigeria.

### **Workplace Diversity**

Librarians are currently altering their policies and strategies in response to the changing global library environment to attract future talent effectively. As a result, workplace diversity is becoming increasingly important in libraries, which are always looking for ways to be creative and maximize possibilities in the face of increased competition.

The dimensions of workplace diversity and its related factors should foster a multicultural working environment, encourage productivity, professionalism and improve the performance of the business. Libraries will have to develop successful strategies and invest more in diversity initiatives in future years to remain competitive. Others anticipate that businesses with the greatest strategy for workplace diversity will attract the biggest group of people, maximize recruiting, and reduce operational costs.

In addition, research has demonstrated that workplace diversity has contributed to favourable performance for most organizations. Nevertheless, addressing the complexity of workplace diversity is part of the essential aspects of library management. Diversity is impeded by the unfairness and prejudice of workers.<sup>29</sup> Such treatment of employees can undermine morale, team development, profit growth and employment.<sup>30</sup> Nigerian libraries must tackle these obstacles to take advantage or reap the benefits in terms of workplace diversity. The organization (library) should promote efficient communication and teamwork at work and create a shared community to increase acceptance and productivity.<sup>31</sup>

### **Ethnic and Religious Diversity in Nigeria Academic Libraries**

Ethnicity and religion are essential facets of society. These two facets are woven into the fabric of people's lives and are inextricably linked to their cultural identities. As a result, ethnic and religious concerns have become prominent in public debate. Ethnicity is defined as common qualities such as culture, language, and customs that contribute to a person's or group's identity.<sup>32</sup> The actual origins of ethnicity may be traced back to Greece and the term *ethnos*, which referred to a band, tribe, race, a people, or a swarm.<sup>33</sup>

On the other hand, religious diversity refers to the fact that religious beliefs and practices vary significantly,<sup>34</sup> and individuals of many religions and beliefs should coexist and engage on all levels without fear or prejudice. It is a stance or policy toward the plurality of religious belief systems that coexist in society. Thus, ethnic and religious diversity allows a country of diverse religions and cultures to flourish without sectarianism or persecution of a minority group.

Nigeria is made up of three ethnic groupings that are geographically divided and politically opposed and an additional 250–400 ethnolinguistic groups.<sup>35</sup> However, three main ethnic groups account for almost 60% of the country's population: the Hausa/Fulani in the north, the Yoruba in the southwest, and the Igbo in the southeast. In addition, there are several hundred minority ethnic groups spread around the nation, the largest of which is the Ijaw of the south-south area.

The confluence of ethnic and religious identities complicates the high level of ethnic diversity. The southern regions are predominantly Christian, except for the southwest, which has a large population of Christians, Muslims, and indigenous African religions; Islam is extensively practised by the Hausa-Fulani in the northern areas, whereas Christianity is practised by numerous minority ethnic groups in the region.

This diversity can be found in a variety of workplaces around the country, including libraries. In Nigeria, most libraries serve a variety of ethnic and religious groups. For example, the National Library of Nigeria has a diverse workforce that spans age, gender, religion, and political connections, as seen by the branch system throughout states.<sup>36</sup> This diversity is even more evident in academic libraries due to the heterogeneous nature of education, which fosters inclusivity. Most academic libraries in Nigeria are staffed by a mix of various groups, with one ethnic group predominating over the other depending on where the library is located in the country.

However, favoritism among employees is common in most academic libraries since individuals generally prefer those who share their views, beliefs, or ethnicity over those who do not. Library management sometimes favours members of their own groups for hiring, promotion, and assessment. This favoritism in libraries frequently leads to animosity and disputes among coworkers, as seen by the behaviors of library employees.

### **Benefits of Diversity in Academic Libraries**

People are an organization's most valuable asset.<sup>37</sup> When a diverse workforce is successfully managed, both businesses and workers benefit.<sup>38</sup> To guarantee success, libraries must recognize and capitalize on their workers' and users' many ethnicities, genders, abilities, ages, and cultural diversity. Workplace diversity might have a positive influence and increase inclusion in the library. Some of the associated advantages are greater variety of skills, cost savings, superior goods and services, increased corporate image, improved work creativity, and problem-solving. Other advantages may include objective decision-making, innovation, increased productivity, improved corporate performance, greater flexibility and efficiency,

increased trust in relationships, increased worker commitment and satisfaction, improved customer relationships, and effective service delivery to all stakeholders of the organization.<sup>39</sup> Though libraries are not business-oriented, research has shown that corporations with diverse employees have profit margins that are 35% greater than homogenous enterprises.<sup>40</sup>

### **Variety of different perspectives**

Workplace diversity ensures a wide range of viewpoints. Because workplace diversity implies that employees will have various characteristics and backgrounds, they will also be expected to have a diverse set of skills and abilities. As a result, workers at a library with greater workplace diversity will have access to a variety of viewpoints,<sup>41</sup> which is extremely useful for strategy design and execution.<sup>42</sup> As a result, libraries and their many groups have begun to advocate for diversity. For example, in the United States of America, public and academic libraries have organized conferences/meetings and developed standards and action plans.<sup>43</sup>

### **New and Better Innovations**

Intrusive and disruptive technology, changing user requirements, and other information sources that provide comparable services have a growing impact on academic libraries. This level of competition necessitates continual innovation. A diverse workplace increases the likelihood of creativity. This results from combining several thoughts and viewpoints to produce a whole new concept or innovation.<sup>44</sup>

### **Better decision making**

Workplace diversity results in improved decision-making outcomes. This is particularly true for academic librarians who must make daily decisions to provide users with better and more current information. An example of this may be found in the corporate sphere, where a clear relationship was discovered between workplace diversity and decision-making. When diverse teams made business decisions, they beat individual decision-makers up to 87% of the time. When individuals with various experiences and perspectives collaborate, more solutions are developed, leading to better and more informed decision-making processes.<sup>45</sup> This is because a more diverse team has a wider variety of talents and ideas, making the team more flexible and receptive to change, leading to significant business success in the competitive global business environment.

### **Increased Creativity**

Diversity in the workplace fosters creativity. Employees with comparable qualities may generate similar ideas. If libraries exclusively hire people from similar cultures, viewpoints, and socioeconomic backgrounds, it tends to inhibit innovation. On the other hand, employees with diverse backgrounds will provide different ideas to attain a shared goal.<sup>46</sup> According to Andrade and River,<sup>47</sup> when the University of Arizona completed a library climate study, they found that diversified backgrounds, views, and cultures contribute a rich tapestry of experience, insights, and cultures to the workforce.

### **Better understanding of patrons**

A more diversified workforce can more successfully advertise library services to clients of various ethnic and racial origins. By having a diverse workforce, it is more likely that patrons will find someone relatable employed by the library who can foster a greater understanding of library services. They can also assist the organization in understanding cultural gaps that may actively impede progress.<sup>48</sup> Library visits will rise as services fulfill the diverse demands of customers. In addition, academic libraries and the diverse population benefitted from improved communication because, as Kung et al.<sup>49</sup> and Van der Walt & Du Plessis<sup>50</sup> found, library customers identify and relate with library staff who have similar traits in language, race, age, ethnicity, and gender. This enables the library to better engage with users and provide novel services to satisfy their diverse needs.<sup>51</sup>

### **Critical Thinking and Problem Solving Skills**

Workplace diversity can help libraries enhance their problem-solving and critical thinking abilities. As a result, diverse library employees may stimulate critical thinking, which gives alternate answers and methods to problem-solving and the necessary edge to thrive in a competitive corporate setting. Furthermore, diversity allows for the exchange of personal perspectives, experiences, and approaches to the present workplace culture. These characteristics can help develop local talent while also improving an organization's work culture and bottom line.

Furthermore, Cheah<sup>52</sup> demonstrated that cultural biases, prejudices, or preconceptions might teach workplace conflict resolution if seized, handled, and channelled forcefully. The author claims that greater productivity and better outcomes may be reached in the long term by leveraging each individual's talents and visions. The diverse composition of its teams can

determine a library's success. This remark is supported by Walia and Malik,<sup>53</sup> whose research found that workplace diversity offers employees a wide range of skills to enable strategic planning and management execution.

### **Challenges of Diversity in Academic Libraries**

Workplace diversity is an all-encompassing term that is now experiencing socio-cultural metamorphosis throughout the world. Due to its complexity, it is a difficult subject for modern organizations to address. Given this, workplace diversity has emerged as a recurring topic of discussion in organizational management circles.<sup>54</sup> Some of the difficulties associated with workplace diversity are communication barriers, discrimination, ethnic and cultural differences, gender and lifestyle choices, and generation gaps.

#### **Communications barriers**

It is undeniable that a varied and inclusive workforce boosts creativity, new perspectives, and problem-solving techniques. On the other hand, conflicts escalate concurrently as a result of communication difficulties. More importantly, a language can have various meanings that only individuals from these places can fully comprehend. Furthermore, some gestures may be regarded as offensive even if the person is not aware of them. As a result, there will be more disputes than in a regular workplace since employees would require a longer time to comprehend and collaborate. Working in diverse organizations requires excellent interpersonal skills and cultural awareness, which are seldom taught in schools.<sup>55</sup>

#### **Discrimination**

Discrimination is another problem that has plagued managers, with underlying reasons related to gender, ability level, and culture, which might come from managers, individuals, or teams.<sup>56</sup> Nigeria is well-known for its discriminatory practices, which are firmly ingrained in the country's politics. A cursory examination of the present government's political appointments reveals a one-sided appointment that is mainly Muslim. Discrimination among library workers may occur if disparities among library personnel are not effectively controlled in most diverse academic libraries. Racial discrimination is a growing issue that is connected to workplace diversity. Top management frequently discriminates against employees who are not of the same ethnic origin, which has a detrimental impact on worker engagement.<sup>57</sup> Workplace discrimination lowers employee morale and has a negative impact on productivity and performance. The library should be able to handle diversity and establish bridges without



discrimination. The high cost of workforce diversity management is another significant issue in diversity management.

### **Ethnic and Cultural Differences**

In a diverse library, ethnic and cultural differences may pose difficulties. This is evident in the corporate sector. For example, with the departure of American Express CEO Ken Chenault, the Fortune 500 now has just three African-American CEOs. According to a University of Wisconsin researcher, those with names that seem African-American are 14% less likely to obtain a job offer. Unfortunately, racism is still present in the workplace. This inherent prejudice is always an issue.<sup>58</sup> Nwokpoku et al.<sup>59</sup> mentioned employees' individualistic behaviour, particularly their ideas and belief systems, as a challenge in Nigeria.

### **Gender and Lifestyle Choices**

In many businesses, gender is an essential focus because of human diversity, capital and quality of life.<sup>60</sup> As a result, gender-related issues like wage inequalities, promotions, and decision-making authority among males and females in companies continue to be a point of contention. Despite progress in some areas, stereotypes of women as the weaker sex, suited only for temporary, part-time, or low-stress employment, remain today<sup>61</sup>.

### **Generation Gaps**

Traditionalists, baby boomers, generation X, millennials, and the iGeneration are the various generational divisions that exist in theory. The majority of these generations are found working in Nigerian libraries.<sup>62</sup> Generational differences is one of the essential issues for the diversity of the workplace. The outcome is a loss of cohesiveness produced by a lack of communication between older and younger generations. This causes issues in the workplace, especially when strategic changes are necessary to progress businesses. As a result, generations that are wide apart can have problems during the adjustment period, which some generation groups interpret as a shift in the professional cycle.<sup>63</sup>

### **Swarm Intelligence**

Several approaches have been established to address the problems that workforce diversity poses for academic libraries. These have urged managers to promote inclusivity, and avoid inequality, stereotypes, biases, oppression, and harassment among employees.<sup>64</sup> Some of the common approaches used by library managers to promote workforce diversity include the development of policies, the creation of strategic action plans, and the creation of standards to

support the implementation and enforcement of workforce diversity as it is currently practised in the United States and Canada.<sup>65</sup> However, these techniques have been used in Nigerian libraries for a long time, and they have not remedied the diversity problem. As a result, there is a need to implement a technique that has been proved to function in nature and other settings. This is known as swarm intelligence.

According to Nichol,<sup>66</sup> swarm intelligence is the self-organization of decentralized collective behaviour systems. SI allows groups to converge and become autonomous organisms capable of performing tasks that individuals cannot achieve on their own. Krause et al.<sup>67</sup> further indicate that SI arises in a self-organized manner when social interactions combine people's information or behaviors to solve a problem better than isolated individuals could.

SI applies animal group ideas to practical corporate contexts. For example, army ants (*Eciton burchellii*) may construct bridges out of their bodies to allow others in the colony to overcome gaps in their route. Studies on these "living bridges" look at how individual behaviour and relationships allow bridges to be built over gaps of different sizes, modify the most effective way across a gap and break apart when road traffic drops.<sup>68</sup> Furthermore, while animals have a remarkable capacity to collaborate, their societies are basic, allowing for the extraction of the key mechanisms behind their success.

The capacity to quantify behavioural variables has recently been enhanced by the introduction of automated technologies that allow tracking the actions of some or all group members at the same time, both in the lab and in the field.<sup>69</sup> As a result, scientists can collect accurate data on individual behaviors and interactions over long periods. With this data, biologists constructed theoretical and statistical models of the dynamics underpinning the formation of SI. As a result, animal SI studies are expected to give insight into underlying principles that drive many collective phenomena, making animal groups a good focus for insights into the collective intelligence of library teams.

It has been demonstrated that having diverse colonies improves performance in some species of social insects. For example, it was observed that genetically varied colonies of harvester ants (*Messor arenarius*) maintained their nests better and foraged more widely.<sup>70</sup> According to Nichol,<sup>71</sup> the success of social insects may be attributed to five characteristics: work division, collective behaviors, navigation, communication, and self-organization. These five qualities could be used to manage different library teams in order to gain a competitive advantage.

## **Work division**

One of the most noticeable aspects of social insects such as ants is the division of labor. Insect colonies are often diverse<sup>72</sup> and retain flexibility, allowing the division of labor to adjust to the colony's status and, in parallel, to external conditions, such as the number of workers or job demands. The flexibility and fast reaction to changes in the colony's status and environment, on the one hand, and specialization of workers for tasks, on the other, are fascinating features of the processes driving behaviour in colonies. Throughout its life, a honeybee performs a variety of activities as part of its behavioural development. A honeybee will nurse throughout the early weeks of its adult life and then performs other tasks inside the hive, and only in its last weeks does it depart the colony to forage.<sup>73</sup> In reaction to changes in the colony or environmental conditions, this behavioural development can be delayed, accelerated, or even reversed. The presence of castes is the most visible manifestation of such work division. For example, workers in leaf cutter ants may be classified into four different castes, and their size is strongly related to their activities.<sup>74</sup> Only workers with heads larger than 1.6 millimetres can cut the leaves required to produce a mushroom, which is the major food supply for these colonies. In contrast, only the tiny workers with heads of around 0.5 millimetres in diameter can manage the mushroom's cultivation.

Academic libraries can adapt to this division of labor for a diverse team. Intentionally diverse teams can be formed to leverage the benefits of diverse perspectives and experiences. This intentional division of labor would provide a synergy of ideas; nevertheless, personnel work division must be adaptable and changeable in response to changes in the workplace. Like the honeybee, library employees may be summoned to do a task that is not ordinarily their responsibility. The task and expertise of library personnel will determine their future responsibilities.

### **Collective Behaviour**

Social insects exhibit some of their most exciting and intricate collective behaviors when collecting resources outside the nest. Members of a colony coordinate their efforts to successfully discover and utilize the most valuable resources by directly or indirectly communicating information about the environment.<sup>75</sup> Garnier et al.<sup>76</sup> classify social insect collective activities into four types: coordination, cooperation, deliberation, and collaboration. They are not mutually exclusive but rather aid in the completion of the colony's many collective responsibilities.

Coordination is the appropriate organization of the tasks necessary to address a given problem in location and time. This function produces particular spatiotemporal distributions of

persons, their actions, and their activities' outcomes to achieve a certain objective. Coordination occurs, for example, in the organizing of displacement in bee and locust swarms.<sup>77</sup> Individual interactions in this scenario result in coordinated (temporal organization) and oriented (spatial organization) motions toward a specified objective. In the same vein, if academic libraries are to fulfil their purpose, they should have a coordinated diverse team. The library should be structured in such a way as to inspire coordination. The library administration should be intentional to ensure that the diverse team functions as a team. The diverse team should recognize their differences and harness those differences as strengths instead of weaknesses. Social-network analysis tools like Maven7 or TrustSphere can help workers become more aware of their interaction patterns, whereas "voice of the employee" applications like CultureAmp or Diverst can encourage direct reports and peers to provide feedback and share their ideas, allowing library management to design customized tasks from the team ideas.<sup>78</sup> This can help a diverse workforce to be coordinated and function as a team.

Cooperation happens when two or more people work together to complete a job that a single person could not do. Individuals must work together to tackle an issue that is beyond their capacities. Cooperation is seen in big prey recovery when a single member is too weak to carry a food item. Many examples of cooperative prey transport have been documented for various ant species, including weaver ants (*Oecophylla longinoda*).<sup>79</sup> Such coordinated prey movement can be a very effective means of bringing food back to the nest. To apply this to libraries, the challenging work should not be left to a single individual in the library. Other staff should provide assistance. This will enable the task to be completed quicker and successfully, just like the weaver ants.

Deliberation refers to the mechanisms that occur when a colony is confronted with several possibilities. These mechanisms culminate in a single option, which the colony members determine jointly. For example, honeybees (*Apis Mellifera*) pick the more productive floral parcels as a result of unemployed workers being enrolled by the waggle dance performed by foragers returning from a food source.<sup>80</sup> When ants of the species *Lasius niger* locate some food sources of variable quality or many paths leading to a food source, they often choose only one of the several possibilities. In this scenario, the decision is prompted by the rivalry between the chemical trails leading to each possibility.

In general, ants will forage near the richer food source and take the shortest way to the food source.<sup>81</sup> This same approach can be adapted to a diverse library team. For instance, an academic library can assign a task to different individuals with a variety of backgrounds and perspectives. These individuals will provide different ways of achieving the task because of their

differences. Library management, like the honeybee, may choose the most effective alternative from the different possibilities provided.

Collaboration indicates that various actions, such as searching for prey or tending brood within the nest, are carried out concurrently by groups of specialized individuals.<sup>82</sup> In contrast, all workers in the Indian paper wasps *Ropalidia marginata* and *Ropalidia cyathiformis* appear the same. They do not, however, work at the same level or have the same duties. Some of the employees are foragers, and they bear the majority of the responsibility of leaving the colony in search of food and building supplies. Others are experts at staying and working at the nest. Some of them are more aggressive to their nestmates than others, and they are referred to as fighters. The other wasps that remain at home are known as sitters, and they spend their time sitting and grooming themselves.<sup>83</sup> Libraries can adopt these types of collaboration. Library workers with similar specializations can work together to achieve a goal even if they do not work in the same unit.

### **Navigation**

When foraging, several species of ants leave pheromone trails, which attract other ants. According to Deneubourg et al.,<sup>84</sup> pheromone trails assist ants in determining the quickest distance between a colony and a food source. Libraries can draw inspiration from social insects and route construction when tackling the challenge of controlling diverse teams. Library teams can do environmental scanning collectively, with each member of the team participating in the information quest. Members who make headway in this information search should share preliminary information with the team members, establishing trails for others to follow. This will enable diverse library teams to reach their targeted goal faster than when there are no trails.

### **Communication**

Communication has been thoroughly researched in teams. Although research has demonstrated that communication may improve team performance, the advantages of communication are dependent on both task characteristics and communication methods.<sup>85</sup> Animals have been observed using numerous forms of communication to attain their goals. These communication modes can be adapted by diverse academic libraries based on task characteristics. This will enhance communication and effectiveness in the library.

### **Self-Organization**

The notion of self-organization can be traced back to Greek and Buddhist philosophy.<sup>86</sup> In the eighteenth century, the phrase "self-organization" was used rarely. Ashby<sup>87</sup> used the term "self-organizing system" to characterize situations in which local partnerships between independent parts rise to global behaviors. The expression is used when an outside observer detects a pattern in a system with many components, and a central authority does not impose the pattern but instead emerges from the collective behaviour of the elements themselves. As a result, it is when spontaneous order emerges from something that was previously chaotic. Natural examples may be seen in collective motion regions, such as when birds or fish move in flocks or schools, showing sophisticated group behaviour.<sup>88</sup> It happens when ants cooperate to create huge colonies without a distinct intelligence to guide them. Furthermore, it occurs when people effortlessly avoid colliding with one another when enormous groups intersect.

When a group of fifty employees is formed, they will be unorganized since they do not know their purpose or how to operate together. A manager can create order by issuing directions to employees or offering blueprints to them. This order, however, is not self-organization because it is forced. Otherwise, unless they have a defined goal to fulfil, employees might form an agreement and collaborate without external guidance. The major distinction here is workers' degree of autonomy in establishing the rules that govern how their job is done. Self-organization is a continual process, not a binary one. As external pressures diminish, a group's ability to self-organize grows. As a result, contrary to common perception, self-organization does not imply 'no rules at all.' The creation of those rules is fundamental to self-organization. Instead of being forced, communities find them on their own. Additionally, here is where liberating structures come into play.<sup>89</sup>

### Challenges of Applying SI to Managing Diverse Teams

Despite the numerous benefits of diversity in the library and the potential that SI has to offer to Nigerian academic libraries, there are still challenges that management must overcome if they are to use SI in their libraries successfully. This includes psychological factors, the difficulty to demonstrate a return on investment, and the required skill set.

**Psychological factors:** Some people like challenging assignments that allow them to make their own decisions and provide them with a range of tasks. Others may be driven primarily extrinsically in the form of monetary benefits.<sup>90</sup> As a result, library employees may be hesitant to take on increased responsibility without further financial compensation. This highlights the need to provide incentives to academic librarians in Nigeria who are not financially satisfied.<sup>91</sup>

**Inability to Show Return on Investment:** It is necessary to demonstrate return on investment in libraries. Libraries must show their worth in ways that are measurable and relevant to donors and administrators. The problem of assessing the worth of a library's services and goods is not new.<sup>92</sup> According to Kim,<sup>93</sup> finding proper techniques for estimating the value of library services and labeling library products and services with the correct comparable market pricing is a monumental effort. Libraries cannot persuade stakeholders of the need for SI unless they can demonstrate a robust financial case for SI.

**Skills:** The first type of necessary skills includes technical abilities related to job performance.<sup>94</sup> Another essential skill set is that of social skills connected to managerial duties. A lack of these two types of skills may stifle the development of self-organization. According to Rahman,<sup>95</sup> a manager's lack of skills and initiative, and incapacity to convey ideas impedes diversity policy implementation. According to Papik,<sup>96</sup> while a bachelor's, master's, and occasionally a PhD degree is required, the ability to develop new solutions employing expertise in advanced analytics and data mining, among other skills, is a considerable benefit to libraries. According to Viviers et al.,<sup>97</sup> these abilities are required to convert and turn information into actionable insight in today's competitive global corporate environment.

## Conclusion

Librarians in academic libraries should continue to strategize through SI to position themselves for improved decision making, more creativity, and higher productivity. SI is an essential factor to consider while managing teams in a diverse academic library. Because of the remarkable collective achievements that many animals can perform, the study of animal SI is an important source of inspiration that provides the library with a one-of-a-kind opportunity for transformation. Library administration should foster self-organization to develop a system that can function independently with less supervision. They should also provide work division to enable flexibility and adaptation.

Similarly, navigation should be encouraged so that library employees may always build on the contributions of others. Furthermore, communication should be maintained as workers engage in collective behaviour. This strategy will help to inspire team innovation and effectiveness. As a result, it is suggested that library administration offer the psychological support required to engage in collective behaviour.

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