NEED FOR HOLISTIC APPLICATION OF COGNITIVE READINESS FOR PROJECT VALUE CREATION: COMPLETE LEADERSHIP FOR PROJECT TEAM SUCCESS

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ABSTRACT

The purpose of this paper is to set forth a research plan and call for volunteers to engage in the research, initiated in the Research Conference of 2021, on an important issue impacting projects and programs, but more importantly society [4]. Given the proliferation of articles, publications, surveys, and other communication modes about stressing one character expression of a capability or skill of the three intelligences over other character expressions of the myriad of capabilities and skills that comprise cognitive readiness, one needs to understand the impact of such communications. The focus on one expression such as empathy or passion can leave a team not understanding the objectives, necessary team interactions, and other aspects of team leadership and management necessary for delivery of outputs and benefits for the organization, the market and society. Understanding the impact of this focus on areas of team interactions; team development, including both personal and professional; performance and resilience of teams during times of crisis and disruption; and various personnel decisions will be vital to directing training, course development, team communications, and other personnel interactions.

KEYWORDS
Cognitive readiness, Competence, Complexity, Empathy, Flexibility, Resilience

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1. INTRODUCTION

Cognitive readiness or competence to perform a position, such as project manager or leader is not well understood, documented, or studied through case studies or experimental laboratory simulation. There are documented lists, survey results that state team members value certain traits, opinion pieces, and frameworks [8], but none of these documents present solid case studies or validated and verified research of project managers engaged in delivering outcomes. The documents are based upon surveys, input from project management experts, and in some cases team members. While these documents do not per se stress one trait or one area of competency over another one, the most recent articles and posts appear to stress one trait over the others: empathy. The hypothesis of this paper is that the promotion of singular traits, non-psychologically or neurology-based grouping of traits, or traits *du jour* might end up doing more harm than good. Several tasks need to be undertaken for the benefit of the profession and related fields, including human resources. Further, there needs to be assessment studies for training, educating, and mentoring project managers or leaders based upon further research building from the documentation that exists in competency and cognitive readiness.

There is a dearth of research articles, surveys, and case studies directly on point as to the application of cognitive readiness in the profession. One can find research on individual traits, scholarly articles on emotional intelligence, and some research related to the integration of emotional and social intelligences. One currently must use articles written by various psychologist who have studied the professions of policing, military, and recently education. The focus on individual competencies or attributes in project management needs to change. It is hoped that this focus can be enhanced by demonstrating what has been done to date in project management, but more importantly in other professions to assist them to be effective and successful, especially in complex, disruptive environments. Cognitive readiness is not an additive to project management, but it is a transformational change in how we view the competencies: skills, capabilities, and knowledge that can be brought to bear to achieve effective and successful outcomes [1].

2. MODALITY OF STRESSING JUST ONE ASPECT OF HUMAN BEHAVIOR

As Kathleen Hass, a researcher in complexity science, stated, "As complexity science teaches us, human behavior is complex because humans are always reacting to their environment, and therefore human activity is impossible to predict. In addition, teams are complex adaptive systems within the larger program, the program is also a complex adaptive system operating within a complex adaptive organization; the organization is trying to succeed (by changing and adapting) within a complex adaptive global economy [1]."

The current trend of stressing empathy or only one behavior of the myriad of behaviors within the intelligences that comprise cognitive readiness. The emphasized behavior, empathy or other, in cognitive readiness is sending an incorrect and potentially dangerous message to project and program leaders or managers, depending on how an organization labels them. Cognitive readiness is comprised of cognitive, emotional, and social intelligence and allows for the expression of one or more aspect of each to be expressed at any one point, as well as in combination, and to provide for flexibility and resilience [1].

So how did the profession and organizations in general get to where one intelligence capability and one aspect under that type of intelligence is being touted? For too long project and program management standards, education and training have focused on the "hard skills" of project management, generally considered to be those skills that allow the project or program manager to manage

the cost, schedule, and scope, as well as the integrating subject or knowledge areas, such as quality and risk. This focus on hard skills was driven by several considerations: national, regional, or local regulations; ease of applying metrics that can be confined to an equation; and ease of instruction to assist the student to achieve understanding and potential application of the skill set.

The current trend in blogs has started to shift towards the "soft skills," such as team motivation, empathy, communication, flexibility, resilience, and leadership [9,11]. However, the Cognitive Readiness Project principals suggest that in order to apply these soft skills in conjunction with the hard skills effectively in any given project or program situation, one needs to understand the level of cognitive readiness individuals and teams possess in each intelligence area and their ability to integrate the various areas of intelligence at any point and throughout the project.

Currently, several organizations have stated that the survey says that what employees value is empathy [7]. While there is nothing incorrect in the statement, since the surveys of employees presented with a list of traits identify empathy as their most appreciated leadership trait, organizations, and stakeholders still value delivery of outcomes and benefits [7]. A balance is required for an organization and the project or program manager or leader to be successful in the delivery of those outcomes and benefits.

While the article, "Addressing Police – Public Encounters," focuses on stakeholder interactions by law enforcement officials, the statement by Preddy, Stefaniak, and Katsioloudis applies equally well to project and program manager interactions with various and diverse stakeholders or stakeholder groups: ". . . a broad representation of knowledge, skills, behaviors, attitudes, and attributes needed to perform effectively in complex, uncertain environments" [10]. This statement is cognitive readiness stated in the terms appropriate for the audience being addressed. The main point is that in complex and uncertain environments, such as projects and programs, the need is for a "broad representation of the aspects of cognitive readiness and the intelligences it represents is necessary.

Note, while a law enforcement official or a project manager need empathy in their capability and skill set, it needs to be blended with the technical knowledge of how to react given certain indicators and the need to be socially aware of the group one is interacting, along with the other traits of emotional intelligence. As an example of the other emotional intelligence traits that should be integrated to allow the project or program managers to be effective are: emotional self-awareness and a variety of self-management competencies such as self-control [1]. The reasoning behind the need to integrate emotional with the technical and social intelligences is "because the person's mental state and moods end up influencing the mood of others through an emotional contagion" [1].

The same emphasis applies to the competencies of social intelligence such as social awareness competencies and relationship management competencies [1]. The whole being of the project and program manager should be present through the complex project or program and not just when the trait of empathy should be employed with team members, stakeholders, and others.

2.1 What Does the Current Emphasis on Empathy Mean?

If the current emphasis on empathy means educating managers and leaders in organizations on empathy and is role in the organization, while making it clear that it is but one capability, skill, or trait that should be deployed, it might be appropriate albeit limited since it does not afford integration and situational analysis. However, focusing solely on empathy, placing oneself in the shoes of others or stated another way, the capacity to understand people, to listen carefully, interpret and respond to the wishes of others, can put at risk the project or program [1]. How can this situation be? Cognitive readiness is comprised of three equally important intelligences. As with any trian-

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gle, it will become skewed if one side is stressed over the others. Cognitive readiness incorporates empathy but recognizes the need for "decision making and adaptability." [5]. Adaptability or the capacity to adapt to changing circumstances or to change the behavior consistently, also entails not solely focusing on the wishes of one or a select group within the project team. Adaptability also requires the ability to analyze the situation from multiple perspectives of cognitive, emotional, and social intelligence. To be truly adaptable one must not focus on one trait or competence but be able to integrate them to achieve effective and successful project or program leadership.

While most scholarly articles on cognitive readiness have been written in the context of the military and policing professions, the study of cognitive readiness is expanding into the education profession and through efforts of the authors of this paper and others into the area of project and program management and leadership. The basic tenets of cognitive readiness do not change among the various professions nor does the need for a balanced and integrated approach. Each article noted in this paper and others speak to the need for balance to provide for proficiency, decision-making, agility, flexibility, and adaptive thinking and responsiveness. With projects and programs being forecasted to become more complex and being conducted within disruptive environments such as pandemics, financial crises, and commodity shortages, the need for a balanced and integrated approach becomes more important and vital for organizations. As Boyatzis, Goleman, Gerli, and Bonesso noted in Chapter 8 of the book Cognitive Readiness in Project Teams, "These competencies unravel the complexity of the problem-solving process activated by project managers demonstrating the creative side of their professional role." [1].

2.2 What Does This Mean for the Profession?

The implications for the profession are many and varied. Part of these implications for change are currently being undertaken by trainers, educators, and those individuals focused on mentoring our future generations of project and program managers and leaders [3]. The following is a brief discussion of the changes that need to be undertaken. These changes will be in an evolutionary state as more research and case studies are completed.

Change One:
Trainers in project and program management need to focus on more than teaching individuals how to pass a test. Trainers need to focus on developing a balanced professional. Teaching the tenets of cognitive readiness over just knowledge elements for an exam. To certify an individual as competent to perform within a position such as project manager or leaders, one needs to provide that individual with the tools, knowledge, and scenarios to develop their awareness of the role of cognitive, emotional, and social intelligence. In other words, "Traditional training solutions and their theoretical underpinnings effectively support the attainment of proficiency . . . However, they do not necessarily produce the types of highly skilled teams capable of efficiently adapting in highly unpredictable, high stress situations." [6]. The authors note also that research is needed in how to prepare a team to demonstrate cognitive readiness through training. They note the dearth of material on training teams and understanding when a team has achieved a level of cognitive readiness that would allow the team to function in highly unpredictable, high stress situations [6].

The Fiore, Ross, Karol, and Jentsch note that to avoid confusion ". . . readiness is the potential to perform well . . .." [6]. They further note that one of the means of assessment of that potential for cognitive readiness needs to be developed that is specific to a future environment [6]. The environment for project professionals varies thus providing for a personnel assessment, as well as team assessment challenge. The development of assessment tools that can be structure so the tool can be adapted for the varied environments, including numerous factors, is a training challenge that has as

of yet to be surmounted. The military in the United States has approached the issue by attempting to draft standards for various cognitive competencies, but to date the standards have not proven to be workable given the multitude of various undertakings and professions that need to be assessed [5].

To complicate this challenge to reduce costs and implementation hurdles, Fiore, Ross, Karol, and Jentsch further note that the assessment and training should acknowledge and facilitate the transfer of existing knowledge, capabilities, and skills to the targeted new environments or projects. If one stresses a skill in the emotional intelligence leg of cognitive readiness over any other skill or area of cognitive readiness, the adaptability will appear to be moved into question. For example, it might be that listening rather than emoting empathy is required especially in high-stress environments that have schedule constraints and are subject to disruptions. One might need to listen to understand what exactly the issue or risk is being encountered. Empathy might remain a high need for the personnel but the need to deliver the intended outcome might for a time be more relevant to delivery. Again, the ability to adapt is one of the traits of cognitive readiness for personnel - in this case: project or program managers or leaders.

Change Two:
The second change has begun in our educational system. The need to provide for more team approaches in various disciplines. In project and program management or leadership education, the need for simulated or actual team situations are required for students to understand the interplay of the three intelligences and how to use the understanding to achieve adaptability and readiness for many project environments.

This education stands at the crossroads of cognitive readiness and neuroplasticity. The ability of the brain to change its structure in response to the experience is called neuroplasticity. This phenomenon of "behavioral plasticity" is closely connected with the individual's growing ability to be flexible, adaptable, or the cognitive ability to modify attentional, decisional, and behavioral strategies in a new or changing external environment such as that of a complex project.

By intersecting cognitive readiness and neuroplasticity, the educator facilitates the student in team situations to develop useful patterns of flexibility and adaptability by drawing on the variety of knowledge, capability, and skills that the student has and is developing.

None of this discussion means that classical instruction is not necessary. It enhances the cognitive intelligence of the student and expands upon the knowledge previously acquired, but the student needs to also learn how to apply emotional and social intelligences appropriately and in an adaptive mode. These intelligences are not built upon in the classic classroom instruction.

"(t)here are risks (a) that training and education institutions may misperceive cognitive training, viewing it not as fundamentally "new" but instead as merely additive ("news") to what is already implemented; (b) that cognitive capabilities will be viewed as mere soft skills (i.e., nonkinetic, nontechnical, and nonmeasurable) that do not warrant the same degree of attention as hard skills (i.e., expertise in kinetic, technological destruction of the enemy); and (c) that even if leaders recognize the importance of cognitive competencies, they may mistakenly present their training in a procedural fashion, similar to training for hard skills [5]. In other words, the learning within the realm of cognitive readiness cannot be rote. The education must involve interactive, integrative competencies to teach the students the importance of situational awareness combined with self-awareness and management.

Of note to educators is the need for research in the area of psychophysiology of the team during application of cognitive readiness, especially at various junctures of performance. It would allow

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some correlation possibility among the various applications of the intelligences within cognitive readiness and the activity engaged by the team. It could also allow for understanding of the physiological impacts of approaches and adaptability applied by the project or program manager or leader.

Change Three:
The role of mentor in an organization needs to adapt. The emphasis on application of processes, procedures, workflows, approaches, immediate training, or knowledge gained from education will need to include the desired adaptability and flexibility in the various intelligences. This mentorship will need to account for the latest focus on empathy, but it cannot be the sole focus as a project manager or leader needs to have various other knowledge, capabilities, and skills to achieve the desired adaptability and flexibility. To date, there is not one journal article, internet article, or blog on the subject of mentoring in regard to cognitive readiness. Part of the reason for this gap in preparing project managers or leaders is possibly due to the financial aspect of training and education, but for organizations to benefit from training and education one should integrate mentoring, thus forming a solid triangle of providing cognitive readiness support for staff and project and program teams.

The changing role of the mentor again places emphasis on the need for assessment tools that are specific to the role of project or program manager or leader along with the appropriate metrics for the individual being mentored. Appropriate metrics for the individual being mentored means metrics that are for an entry-level to an experienced individual. Each of those categories could have a blend of metrics depending upon the project or program and the team with which the project or program manager will be working.

Change Four:
Personnel or human resource managers will need to change their focus when hiring or assisting with personnel reviews. These managers will need to be trained on how to analyze resumes or curriculum vitae in light of the need for personnel who demonstrate cognitive readiness rather than hard skills exclusively, which are the realm of cognitive intelligence.

This change will also mean the computerized screening tools currently employed by many organizations will need to be changed to search for terminology that is indicative of potential personnel that have or have acquired a level of cognitive readiness desired for a given position. But again, the assessment tools and appropriate metrics for the level of entry into an organization need to be developed, if the organization values adaptability and flexibility, especially in complex environments.

To date no journal article or other material suggesting a determination of how to conduct such assessments has been located. Part of the issue might be that various countries have prohibitions on asking candidates about some of the emotional and social intelligence perspectives. Further, the metrics appear to be harder to verify and validate. While psychophysio metrics might be an approach, the subjecting of personnel to a battery of such testing is costly and again faces various legal challenges outside of academic studies. Further, such human testing is expensive and heavily regulated in some global marketplaces.

An article was located that discussed the need for such research and spoke to current research, "(t)o inves¬tigate the relations between team autonomic activity and team performance to determine whether team physiological state might be an acceptable index of cognitive readiness." [3] However, no follow-on articles have been located to show the results of this research or application of the learning from the research done by Alexander Walker, et al. Again, part of the reason might be the expense of conducting human testing.

Other issues relate to the multiple definitions for some of the areas to be measured including empathy. While it appears that the general definition of empathy as the ability to understand and share the feelings of another individual, there appears to be little consensus of how to measure how well an individual is applying this aspect of emotional intelligence, since the definition provides no market for a metric. Most articles relying on input from individual team members, as well as the individual, completing 360 evaluations solely ask about the skill application and whether it is applied correctly without any foundation in the metric to be used to assess the application or the correctness [3]. Examples of such questions are: Is the individual non-judgmental, does the individual listen, and does the individual understand their stakeholders. For the individual the questions are just reformatted, such as writing it as am I non-judgmental and one marks the box determined to be the appropriate response [3]. None of these questions are definitive, delineate the number of times an individual has been observed demonstrating such actions, or being verified and validated. In most instances, the verification is a result of the number of responses that are the same. Other issues with 360 evaluations have been noted, such as the appearance of friendship in teams overriding reviewing management or leadership positions, sour grapes results caused by a disciplinary action, selection of the non-offensive response, fear of identification based upon feedback given, and other issues [12]. None of this negative criticism is to say that 360 evaluations do not have a place in the workplace and do not have a place in assisting in improving performance [12].

Even the job site Indeed has had to inform job seekers and companies about the 360-evaluation process [12]. It lists the main pros and cons and cautions that the use of the 360-degree appraisal process should be used only as one appraisal process and not the sole resource for evaluations. Further, it notes that situational analysis should be applied requiring the user of the appraisal process to be aware for various aspects of team dynamics without indicating the how to apply this metric analysis [12].

Other sites note that significant training needs to occur before a 360-degree appraisal process is used and applied to continuous improvement processes for staff and management. Caution should be taken here also since most of the sites offer training and the 360-degree evaluation tools [5,7].

The tools also do not measure the areas of cognitive readiness required at any one time during a team's evolution. Another reason why stressing just one aspect of a skill, knowledge, ability, motivation, or personal disposition is problematic. The definition of cognitive readiness from David T. Fatua, et al: Teams mature and change but can also have points where they change and must reform, such as the introduction of new team members. Such changes can skew results from 360-degree evaluations or cause responses that appear to be inconsistent [5]. The ability to account for these results as noted requires training, observations, documentation, and cognitive readiness on the part of the evaluator. Why cognitive readiness on the part of the evaluator? One reason is that team dynamics and the evaluation of an individual in the team environment is predicated on "how the individual (and) how individuals react and adapt in the face of uncertain and novel situations." [3].

Again, while most research has been done for the military, emergency response teams, and policing organizations, the aspects common to those teams apply to project and program management teams: ". . . individuals may have to cope with time constraints, unforeseen situations, and a consistent requirement to remain vigilant in case of incoming unknowns." [3]

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2.3 Sustainability and Consistency

Not all knowledge, skills, and aptitude tools, checklists, or underlying framework for a 360-degree evaluation tool consistently draw their lists for evaluation from the same set of knowledge, skills, and aptitudes. The introduction of new items or lists that stress other items can cause issues in consistently measuring team members performance on any one area or cause confusion among team members. Another area of concern is that many knowledge, skills, and aptitude tools are devised for specific organizations or programs, then promoted for other organizations or programs for which they have not been specifically designed [3].

Such inconsistencies or focuses can cause a tool to be unsustainable, as well as misapplied. Even if a tool is specifically designed for an organization or program, the fact that organizations and programs mature, change, and are often reformed over time; makes sustainability of the use and application of such tools problematic. It is one of several reasons why many organizations have used several such tools over time or ceased using them altogether. The need for domain specific tools can be costly, thus leading to cessation of the use of the tools.

Beyond being domain specific, it has been noted that such tools are often directed toward the maturation phase that teams are in such as recruitment versus mature and operating well within processes and procedures. The knowledge, skills, and aptitudes or capabilities that are of importance change over time, so the same formulation of a tool or the same tool should not be used over time [3].

In fact, current articles suggest that there is disagreement arising from the prominence of certain skills over others in tools, such as empathy and decision-making [5]. The issue is that pairing with various elements of knowledge specific for the job to be performed, such as risk identification and analysis can caused a skewed interpretation of the overall cognitive readiness of a performer or a team [3]. Even tools that have been validated for various job performance positions in the military have fallen under criticism, ". . .it is still unclear whether the convergence of these measures will have any predictive value toward performance in complex, dynamic, and resource-limited task environments, or what type of relationship exists between the measures toward the build of OCR (overall cognitive readiness) [3]. Thus, sustainability and consistency of these tools to evaluate cognitive readiness for a particular position over time also needs to be researched, evaluated, and applied to determine if such tools can afford insight necessary to determine an individual's or a teams' ability to perform within the organization's connotative definition of cognitive readiness for a position or project.

While cognitive readiness for project and program managers remains viable and should be explored, the need for rigor in the research and evaluation processes is necessary for the theory to be consistently and sustainability applied.

3. RESEARCH PLAN

While the current literature search demonstrated the dearth of material available on the topic, what material does exist normally bemoan the lack of research being done in the profession under study. As to project or program management, the initial steps only have been taken. There is some research done by R. E. Boyatzis [2,12]. This research was realigned for application to project and program managers or leaders in Cognitive Readiness in Project Teams, Reducing Project Complexity and Increasing Success in Project Management [1]. However, this realignment does not reflect research specifically directed toward the profession and in regard to the functioning of the project or program management team.

First, a partnership should be established with a university, or a consortium of professors interested in cooperating on research in the area of cognitive readiness for project and program managers or leaders. The partnership should involve individuals from multiple areas of expertise, such as psychology, neuroscience, sociology, engineering, and business management. The purpose of the partnership would be to access grants or other funding for conducting targeted surveys, case studies, and to develop a compendium of research articles to form the foundation for changes and advancements in the profession in regard to cognitive readiness.

Second, develop the research proposals in specific areas of interest in the various intelligence areas as applied directly to project and program management. Currently there exist gaps in the foundation research because most of the focus has been on other professions. Further, the current research is focused solely on individuals and not the impact on the team and team interactions to achieving an activity or deliverable. Situational analysis and observation of project or program managers in team situations, especially those involving complex projects or programs could be aligned with survey material. The alignment would either reinforce or show discrepancies in the data attained through surveys. Third, the focus of surveys has been on aspects of each of the intelligences but with the goal of targeting one or two characteristics rather than the holistic approach of cognitive readiness. Even the surveys produced with the military as a primary focus tend to select certain traits rather than the whole of the integrated power of the intelligences [5,6].

Finally, the development of one or more assessment tools to facilitate with education, training, and mentoring of project and program managers. The assessment tool could also eventually be used to develop more focused and complete 360 assessments [5].

Each step enumerated would involve numerous research proposals.

4. CONCLUSIONS

Several areas of research exist in the field of cognitive readiness for project or program managers, which should be explored and documented by members of the profession, including those individuals within academia, consulting, and training. The research needs to be rigorous and thorough to allow acceptance of the hypothesis that there exist ways to evaluate individuals for performing the role of project or program manager or leader within the necessary levels of cognitive readiness, as defined by of cognitive, emotional, and social intelligences to perform on complex projects and programs during disruptive times, as well as in general [1]. This evaluation should incorporate the performance as the individual becomes more experienced and as the project or program matures or is impacted by disruptions, changes, risks, or other similar project or program impacts [5].

The need for case studies and the evaluation of those case studies is necessary for the foundational research. The existence of cognitive readiness research focus being mainly in the areas of military operations, emergency services, or policing means that acceptance could be impacted without project and program management targeted research. The focus in the military is predicated on the existence of funding. Funding in the area of project and program managers or leaders and teams to date has not been done for a variety of reasons, including the focus on hard skills to the current focus on empathy.

While the focus needs to be in the discipline of concern: project and program management, the teaming with various associations and organizations concerned with human resource or personnel management might enable the research to move forward. If organizations volunteer to be ana-

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lyzed and documented to move the field of study forward and to move the discussion beyond the 'survey says', which has led to the overemphasis on one capability and skill-empathy, the impact to organizations developing complex projects and programs in disruptive times could prove to be financially beneficial.

What makes a cognitively ready project or program manager will be varied and in some instances organization specific, or project or program specific. However, it is believed that at least some basic tools and guidance can be developed that will lead to more situational-based training, education, and directed mentoring.

Once the foundational research is prepared, the focus can move to assessment frameworks or tools for assessment, and the appropriate use given geographic location, regulations, use, or organization, or project or program particulars. The use of research and assessment frameworks or tools should provide more insight into frameworks for competency for project and program managers, as well as better definitional foundations for the development of various guidance standards.

Finally, the data gathered, instruction developed, and tools provided could assist not only executive management decisions as to the project or program manager to be assigned but provide human resource or personnel managers with information for finding the desired person for projects or programs in the organization. The impact that such research could have currently appears limitless, as it is relatively new and fertile territory for research exploration.

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